

=> FILE HCAPLUS  
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FILE COVERS 1907 - 5 Feb 2003 VOL 138 ISS 6  
FILE LAST UPDATED: 4 Feb 2003 (20030204/ED)

This file contains CAS Registry Numbers for easy and accurate substance identification.

=> D QUE L50

L5        49 SEA FILE=REGISTRY ABB=ON (10043-11-5/BI OR 106392-12-5/BI OR 107852-39-1/BI OR 12624-35-0/BI OR 1314-13-2/BI OR 1314-98-3/BI OR 1317-33-5/BI OR 1318-74-7/BI OR 1320-67-8/BI OR 13397-24-5/BI OR 14807-96-6/BI OR 202537-92-6/BI OR 217478-86-9/BI OR 226558-99-2/BI OR 23779-32-0/BI OR 24937-05-1/BI OR 25068-38-6/BI OR 2530-83-8/BI OR 2530-85-0/BI OR 25322-68-3/BI OR 26590-20-5/BI OR 285980-72-5/BI OR 33294-14-3/BI OR 461-58-5/BI OR 471-34-1/BI OR 540-10-3/BI OR 59125-51-8/BI OR 64-19-7/BI OR 67185-58-4/BI OR 693-98-1/BI OR 7429-90-5/BI OR 7439-89-6/BI OR 7440-02-0/BI OR 7440-05-3/BI OR 7440-06-4/BI OR 7440-22-4/B I OR 7440-50-8/BI OR 7440-57-5/BI OR 7631-86-9/BI OR 7782-42-5/BI OR 7789-75-5/BI OR 87209-95-8/BI OR 9003-39-8/BI OR 9004-81-3/BI OR 9005-65-6/BI OR 9016-45-9/BI OR 9036-19-5/BI OR 91727-33-2/BI OR 919-30-2/BI)

L6        16 SEA FILE=REGISTRY ABB=ON L5 AND 1-3/M

L7        1 SEA FILE=REGISTRY ABB=ON L5 AND BORON

L9        1 SEA FILE=REGISTRY ABB=ON L5 AND TALC

L10      1 SEA FILE=REGISTRY ABB=ON MICA/CN

L11      18 SEA FILE=REGISTRY ABB=ON L6 OR L7 OR L9 OR L10

L13      86604 SEA FILE=HCAPLUS ABB=ON GLASS?(3A)(FIBER# OR FIBRE#)

L14      11434 SEA FILE=HCAPLUS ABB=ON L13(6A)(COAT? OR IMPREGNAT?)

L15      1389400 SEA FILE=HCAPLUS ABB=ON L11 OR INORG?(3A)PARTICL?

L16      2664 SEA FILE=HCAPLUS ABB=ON L14 AND (L15 OR BN OR BORON NITRIDE OR GRAPHITE OR MOS2 OR TALC OR MOLYBDENUM(W) (SULFIDE OR DISULFIDE) OR MICA OR TALC OR KAOLINITE OR GYPSUM OR CACO3 OR CALCIUM CARBONATE OR CAF2 OR CALCIUM FLUORIDE OR ZNO OR ZINC OXIDE)

L17      2727 SEA FILE=HCAPLUS ABB=ON L14 AND (MICA OR TALC OR ALUMINUM OR CU OR COPPER OR IRON OR FE OR AU OR GOLD OR NI OR NICKEL OR PD OR PALLADIUM)

L18      341 SEA FILE=HCAPLUS ABB=ON L14 AND (PT OR PLATINUM OR SILVER OR ZNS2 OR ZINC SULFIDE OR AG)

L19      6 SEA FILE=HCAPLUS ABB=ON L14 AND ZNS

L20      3632 SEA FILE=HCAPLUS ABB=ON (L16 OR L17 OR L18 OR L19)

L21      6 SEA FILE=HCAPLUS ABB=ON L20 AND MOH#

L22	1418 SEA FILE=HCAPLUS ABB=ON	L14 AND (HOLLOW? (3A) ORG? (3A) PARTICL? OR ?ACRYL?) (S)?POLYMER?
L23	7 SEA FILE=HCAPLUS ABB=ON	L22 AND MOH#
L24	481 SEA FILE=HCAPLUS ABB=ON	L14 AND (COMPOSITE(3A)PARTICL? OR ?CARBONAT? OR ?SILCA? OR NANOCLAY?)
L25	6 SEA FILE=HCAPLUS ABB=ON	L24 AND MOH#
L26	7 SEA FILE=HCAPLUS ABB=ON	L21 OR L23 OR L25
L27	83 SEA FILE=HCAPLUS ABB=ON	L20 AND L22 AND L24
L28	33 SEA FILE=HCAPLUS ABB=ON	L27 AND COATING?/SC, SX
L29	18 SEA FILE=HCAPLUS ABB=ON	L27 AND TEXTILE?/SC, SX
L30	42 SEA FILE=HCAPLUS ABB=ON	L28 OR L29
L31	12 SEA FILE=HCAPLUS ABB=ON	L30 AND STRAND#
L32	18 SEA FILE=HCAPLUS ABB=ON	L27 AND STRAND#
L33	6 SEA FILE=HCAPLUS ABB=ON	L27 AND MOH#
L34	18 SEA FILE=HCAPLUS ABB=ON	(L31 OR L32 OR L33)
L35	19 SEA FILE=HCAPLUS ABB=ON	L26 OR L34
L45	192 SEA FILE=HCAPLUS ABB=ON	(L20 OR L22 OR L24) AND STRAND#
L46	98 SEA FILE=HCAPLUS ABB=ON	L45 AND (COMPOSITION? OR COMPNS?)
L47	137 SEA FILE=HCAPLUS ABB=ON	L45 AND STRAND#(4A) (FIBER# OR FIBRE#)
L48	71 SEA FILE=HCAPLUS ABB=ON	L46 AND L47
L49	13 SEA FILE=HCAPLUS ABB=ON	L48 AND POWDER?
L50	28 SEA FILE=HCAPLUS ABB=ON	<u>L35</u> OR L49

=> FILE WPIX  
FILE 'WPIX' ENTERED AT 17:14:31 ON 05 FEB 2003  
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FILE LAST UPDATED: 4 FEB 2003 <20030204/UP>  
MOST RECENT DERWENT UPDATE: 200308 <200308/DW>  
DERWENT WORLD PATENTS INDEX SUBSCRIBER FILE, COVERS 1963 TO DATE

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/BIX is also provided which comprises both /BI and /ABEX <<<

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PLEASE VISIT:  
[http://www.stn-international.de/training\\_center/patents/stn\\_guide.pdf](http://www.stn-international.de/training_center/patents/stn_guide.pdf) <<<

>>> FOR INFORMATION ON ALL DERWENT WORLD PATENTS INDEX USER  
GUIDES, PLEASE VISIT:  
[http://www.derwent.com/userguides/dwpi\\_guide.html](http://www.derwent.com/userguides/dwpi_guide.html) <<<

=> D QUE L44

L5           49 SEA FILE=REGISTRY ABB=ON (10043-11-5/BI OR 106392-12-5/BI OR 107852-39-1/BI OR 12624-35-0/BI OR 1314-13-2/BI OR 1314-98-3/BI OR 1317-33-5/BI OR 1318-74-7/BI OR 1320-67-8/BI OR 13397-24-5/BI OR 14807-96-6/BI OR 202537-92-6/BI OR 217478-86-9/BI OR 226558-99-2/BI OR 23779-32-0/BI OR 24937-05-1/BI OR 25068-38-6/BI OR 2530-83-8/BI OR 2530-85-0/BI OR 25322-68-3/BI OR 26590-20-5/BI OR 285980-72-5/BI OR 33294-14-3/BI OR 461-58-5/BI OR 471-34-1/BI OR 540-10-3/BI OR 59125-51-8/BI OR 64-19-7/BI OR 67185-58-4/BI OR 693-98-1/BI OR 7429-90-5/BI OR 7439-89-6/BI OR 7440-02-0/BI OR 7440-05-3/BI OR 7440-06-4/BI OR 7440-22-4/B I OR 7440-50-8/BI OR 7440-57-5/BI OR 7631-86-9/BI OR 7782-42-5/BI OR 7789-75-5/BI OR 87209-95-8/BI OR 9003-39-8/BI OR 9004-81-3/BI OR 9005-65-6/BI OR 9016-45-9/BI OR 9036-19-5/BI OR 91727-33-2/BI OR 919-30-2/BI)

L6           16 SEA FILE=REGISTRY ABB=ON L5 AND 1-3/M

L7           1 SEA FILE=REGISTRY ABB=ON L5 AND BORON

L9           1 SEA FILE=REGISTRY ABB=ON L5 AND TALC

L10          1 SEA FILE=REGISTRY ABB=ON MICA/CN

L11          18 SEA FILE=REGISTRY ABB=ON L6 OR L7 OR L9 OR L10

L13          86604 SEA FILE=HCAPLUS ABB=ON GLASS?(3A)(FIBER# OR FIBRE#)

L14          11434 SEA FILE=HCAPLUS ABB=ON L13(6A)(COAT? OR IMPREGNAT?)

L15          1389400 SEA FILE=HCAPLUS ABB=ON L11 OR INORG?(3A)PARTICL?

L16          2664 SEA FILE=HCAPLUS ABB=ON L14 AND (L15 OR BN OR BORON NITRIDE OR GRAPHITE OR MOS2 OR TALC OR MOLYBDENUM(W) (SULFIDE OR DISULFIDE) OR MICA OR TALC OR KAOLINITE OR GYPSUM OR CACO3 OR CALCIUM CARBONATE OR CAF2 OR CALCIUM FLUORIDE OR ZNO OR ZINC OXIDE)

L17          2727 SEA FILE=HCAPLUS ABB=ON L14 AND (MICA OR TALC OR ALUMINUM OR CU OR COPPER OR IRON OR FE OR AU OR GOLD OR NI OR NICKEL OR PD OR PALLADIUM)

L18          341 SEA FILE=HCAPLUS ABB=ON L14 AND (PT OR PLATINUM OR SILVER OR ZNS2 OR ZINC SULFIDE OR AG)

L19          6 SEA FILE=HCAPLUS ABB=ON L14 AND ZNS

L20          3632 SEA FILE=HCAPLUS ABB=ON (L16 OR L17 OR L18 OR L19)

L21          6 SEA FILE=HCAPLUS ABB=ON L20 AND MOH#

L22          1418 SEA FILE=HCAPLUS ABB=ON L14 AND (HOLLOW?(3A)ORG?(3A)PARTICL? OR ?ACRYL?)(S)?POLYMER?)

L23          7 SEA FILE=HCAPLUS ABB=ON L22 AND MOH#

L24          481 SEA FILE=HCAPLUS ABB=ON L14 AND (COMPOSITE(3A)PARTICL? OR ?CARBONAT? OR ?SILCA? OR NANOCLAY?)

L25          6 SEA FILE=HCAPLUS ABB=ON L24 AND MOH#

L36          12 SEA FILE=WPIX ABB=ON L21 OR L23 OR L25

L37          28 SEA FILE=WPIX ABB=ON L20 AND L22 AND L24

L38          12 SEA FILE=WPIX ABB=ON L37 AND STRAND#

L39          8 SEA FILE=WPIX ABB=ON L37 AND MOH#

L40          16 SEA FILE=WPIX ABB=ON L36 OR L38 OR L39

L41          135 SEA FILE=WPIX ABB=ON (L20 OR L22 OR L24) AND STRAND#

L42          45 SEA FILE=WPIX ABB=ON L41 AND C03C?/IC

L43          28 SEA FILE=WPIX ABB=ON L42 AND C08J?/IC

L44          33 SEA FILE=WPIX ABB=ON L40 OR L43

&gt; FILE JAPIO

FILE 'JAPIO' ENTERED AT 17:14:42 ON 05 FEB 2003

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FILE LAST UPDATED: 21 JAN 2003           <20030121/UP>  
FILE COVERS APR 1973 TO AUGUST 30, 2002

&lt;&lt;&lt; GRAPHIC IMAGES AVAILABLE &gt;&gt;&gt;

=> D QUE L51

L5           49 SEA FILE=REGISTRY ABB=ON (10043-11-5/BI OR 106392-12-5/BI OR 107852-39-1/BI OR 12624-35-0/BI OR 1314-13-2/BI OR 1314-98-3/BI OR 1317-33-5/BI OR 1318-74-7/BI OR 1320-67-8/BI OR 13397-24-5/BI OR 14807-96-6/BI OR 202537-92-6/BI OR 217478-86-9/BI OR 226558-99-2/BI OR 23779-32-0/BI OR 24937-05-1/BI OR 25068-38-6/BI OR 2530-83-8/BI OR 2530-85-0/BI OR 25322-68-3/BI OR 26590-20-5/BI OR 285980-72-5/BI OR 33294-14-3/BI OR 461-58-5/BI OR 471-34-1/BI OR 540-10-3/BI OR 59125-51-8/BI OR 64-19-7/BI OR 67185-58-4/BI OR 693-98-1/BI OR 7429-90-5/BI OR 7439-89-6/BI OR 7440-02-0/BI OR 7440-05-3/BI OR 7440-06-4/BI OR 7440-22-4/B I OR 7440-50-8/BI OR 7440-57-5/BI OR 7631-86-9/BI OR 7782-42-5/BI OR 7789-75-5/BI OR 87209-95-8/BI OR 9003-39-8/BI OR 9004-81-3/BI OR 9005-65-6/BI OR 9016-45-9/BI OR 9036-19-5/BI OR 91727-33-2/BI OR 919-30-2/BI)

L6           16 SEA FILE=REGISTRY ABB=ON L5 AND 1-3/M

L7           1 SEA FILE=REGISTRY ABB=ON L5 AND BORON

L9           1 SEA FILE=REGISTRY ABB=ON L5 AND TALC

L10          1 SEA FILE=REGISTRY ABB=ON MICA/CN

L11          18 SEA FILE=REGISTRY ABB=ON L6 OR L7 OR L9 OR L10

L13          86604 SEA FILE=HCAPLUS ABB=ON GLASS?(3A)(FIBER# OR FIBRE#)

L14          11434 SEA FILE=HCAPLUS ABB=ON L13(6A)(COAT? OR IMPREGNAT?)

L15          1389400 SEA FILE=HCAPLUS ABB=ON L11 OR INORG?(3A)PARTICL?

L16          2664 SEA FILE=HCAPLUS ABB=ON L14 AND (L15 OR BN OR BORON NITRIDE OR GRAPHITE OR MOS2 OR TALC OR MOLYBDENUM(W) (SULFIDE OR DISULFIDE) OR MICA OT TALC OR KAOLINITE OR GYPSUM OR CACO3 OR CALCIUM CARBONATE OR CAF2 OR CALCIUM FLUORIDE OR ZNO OR ZINC OXIDE)

L17          2727 SEA FILE=HCAPLUS ABB=ON L14 AND (MICA OR TALC OR ALUMINUM OR CU OR COPPER OR IRON OR FE OR AU OR GOLD OR NI OR NICKEL OR PD OR PALLADIUM)

L18          341 SEA FILE=HCAPLUS ABB=ON L14 AND (PT OR PLATINUM OR SILVER OR ZNS2 OR ZINC SULFIDE OR AG)

L19          6 SEA FILE=HCAPLUS ABB=ON L14 AND ZNS

L20          3632 SEA FILE=HCAPLUS ABB=ON (L16 OR L17 OR L18 OR L19)

L21          6 SEA FILE=HCAPLUS ABB=ON L20 AND MOH#

L22          1418 SEA FILE=HCAPLUS ABB=ON L14 AND (HOLLOW?(3A)ORG?(3A)PARTICL? OR ?ACRYL?)(S)?POLYMER?

L23          7 SEA FILE=HCAPLUS ABB=ON L22 AND MOH#

L24          481 SEA FILE=HCAPLUS ABB=ON L14 AND (COMPOSITE(3A)PARTICL? OR ?CARBONAT? OR ?SILCA? OR NANOCLAY?)

L25          6 SEA FILE=HCAPLUS ABB=ON L24 AND MOH#

L36          12 SEA FILE=WPIX ABB=ON L21 OR L23 OR L25

L37          28 SEA FILE=WPIX ABB=ON L20 AND L22 AND L24

L38          12 SEA FILE=WPIX ABB=ON L37 AND STRAND#

L39          8 SEA FILE=WPIX ABB=ON L37 AND MOH#

L40          16 SEA FILE=WPIX ABB=ON L36 OR L38 OR L39

L41          135 SEA FILE=WPIX ABB=ON (L20 OR L22 OR L24) AND STRAND#

L42          45 SEA FILE=WPIX ABB=ON L41 AND C03C?/IC

L43          28 SEA FILE=WPIX ABB=ON L42 AND C08J?/IC

L51          1 SEA FILE=JAPIO ABB=ON L40 OR L43

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=&gt; FILE EMA

FILE 'EMA' ENTERED AT 17:14:53 ON 05 FEB 2003

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FILE LAST UPDATED: 16 JAN 2003  
FILE COVERS 1986 TO DATE.

&lt;20030116/UP&gt;

&gt; D QUE L52

L5           49 SEA FILE=REGISTRY ABB=ON (10043-11-5/BI OR 106392-12-5/BI OR  
              107852-39-1/BI OR 12624-35-0/BI OR 1314-13-2/BI OR 1314-98-3/BI  
              OR 1317-33-5/BI OR 1318-74-7/BI OR 1320-67-8/BI OR 13397-24-5/  
              BI OR 14807-96-6/BI OR 202537-92-6/BI OR 217478-86-9/BI OR  
              226558-99-2/BI OR 23779-32-0/BI OR 24937-05-1/BI OR 25068-38-6/  
              BI OR 2530-83-8/BI OR 2530-85-0/BI OR 25322-68-3/BI OR  
              26590-20-5/BI OR 285980-72-5/BI OR 33294-14-3/BI OR 461-58-5/BI  
              OR 471-34-1/BI OR 540-10-3/BI OR 59125-51-8/BI OR 64-19-7/BI  
              OR 67185-58-4/BI OR 693-98-1/BI OR 7429-90-5/BI OR 7439-89-6/BI  
              OR 7440-02-0/BI OR 7440-05-3/BI OR 7440-06-4/BI OR 7440-22-4/B  
              I OR 7440-50-8/BI OR 7440-57-5/BI OR 7631-86-9/BI OR 7782-42-5/  
              BI OR 7789-75-5/BI OR 87209-95-8/BI OR 9003-39-8/BI OR  
              9004-81-3/BI OR 9005-65-6/BI OR 9016-45-9/BI OR 9036-19-5/BI  
              OR 91727-33-2/BI OR 919-30-2/BI)

L6           16 SEA FILE=REGISTRY ABB=ON L5 AND 1-3/M

L7           1 SEA FILE=REGISTRY ABB=ON L5 AND BORON

L9           1 SEA FILE=REGISTRY ABB=ON L5 AND TALC

L10          1 SEA FILE=REGISTRY ABB=ON MICA/CN

L11          18 SEA FILE=REGISTRY ABB=ON L6 OR L7 OR L9 OR L10

L13          86604 SEA FILE=HCAPLUS ABB=ON GLASS?(3A) (FIBER# OR FIBRE#)

L14          11434 SEA FILE=HCAPLUS ABB=ON L13(6A) (COAT? OR IMPREGNAT?)

L15          1389400 SEA FILE=HCAPLUS ABB=ON L11 OR INORG?(3A) PARTICL?

L16          2664 SEA FILE=HCAPLUS ABB=ON L14 AND (L15 OR BN OR BORON NITRIDE  
              OR GRAPHITE OR MOS2 OR TALC OR MOLYBDENUM(W) (SULFIDE OR  
              DISULFIDE) OR MICA OT TALC OR KAOLINITE OR GYPSUM OR CACO3 OR  
              CALCIUM CARBONATE OR CAF2 OR CALCIUM FLUORIDE OR ZNO OR ZINC  
              OXIDE)

L17          2727 SEA FILE=HCAPLUS ABB=ON L14 AND (MICA OR TALC OR ALUMINUM OR  
              CU OR COPPER OR IRON OR FE OR AU OR GOLD OR NI OR NICKEL OR PD  
              OR PALLADIUM)

L18          341 SEA FILE=HCAPLUS ABB=ON L14 AND (PT OR PLATINUM OR SILVER OR  
              ZNS2 OR ZINC SULFIDE OR AG)

L19          6 SEA FILE=HCAPLUS ABB=ON L14 AND ZNS

L20          3632 SEA FILE=HCAPLUS ABB=ON (L16 OR L17 OR L18 OR L19)

L21          6 SEA FILE=HCAPLUS ABB=ON L20 AND MOH#

L22          1418 SEA FILE=HCAPLUS ABB=ON L14 AND (HOLLOW?(3A) ORG?(3A) PARTICL?  
              OR ?ACRYL?)(S)?POLYMER?

L23          7 SEA FILE=HCAPLUS ABB=ON L22 AND MOH#

L24          481 SEA FILE=HCAPLUS ABB=ON L14 AND (COMPOSITE(3A) PARTICL? OR  
              ?CARBONAT? OR ?SILCA? OR NANOCLAY?)

L25          6 SEA FILE=HCAPLUS ABB=ON L24 AND MOH#

L26          7 SEA FILE=HCAPLUS ABB=ON L21 OR L23 OR L25

L45          192 SEA FILE=HCAPLUS ABB=ON (L20 OR L22 OR L24) AND STRAND#

L46          98 SEA FILE=HCAPLUS ABB=ON L45 AND (COMPOSITION? OR COMPNS?)

L47          137 SEA FILE=HCAPLUS ABB=ON L45 AND STRAND#(4A) (FIBER# OR FIBRE#)

L48          71 SEA FILE=HCAPLUS ABB=ON L46 AND L47

L49          13 SEA FILE=HCAPLUS ABB=ON L48 AND POWDER?

L52          0 SEA FILE=EMA ABB=ON L26 OR L49

&gt; FILE COMPENDEX

FILE 'COMPENDEX' ENTERED AT 17:15:07 ON 05 FEB 2003

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FILE LAST UPDATED: 3 FEB 2003

&lt;20030203/UP&gt;

KATHLEEN FULLER EIC 1700/PARKER LAW 308-4290

FILE COVERS 1970 TO DATE.

<<< SIMULTANEOUS LEFT AND RIGHT TRUNCATION AVAILABLE IN  
THE BASIC INDEX >>>

&lt;&lt;&lt; NEW DISPLAY FORMAT 'SCAN' AVAILABLE NOW &gt;&gt;&gt;

=&gt; D QUE L53

L5	49 SEA FILE=REGISTRY ABB=ON (10043-11-5/BI OR 106392-12-5/BI OR 107852-39-1/BI OR 12624-35-0/BI OR 1314-13-2/BI OR 1314-98-3/BI OR 1317-33-5/BI OR 1318-74-7/BI OR 1320-67-8/BI OR 13397-24-5/BI OR 14807-96-6/BI OR 202537-92-6/BI OR 217478-86-9/BI OR 226558-99-2/BI OR 23779-32-0/BI OR 24937-05-1/BI OR 25068-38-6/BI OR 2530-83-8/BI OR 2530-85-0/BI OR 25322-68-3/BI OR 26590-20-5/BI OR 285980-72-5/BI OR 33294-14-3/BI OR 461-58-5/BI OR 471-34-1/BI OR 540-10-3/BI OR 59125-51-8/BI OR 64-19-7/BI OR 67185-58-4/BI OR 693-98-1/BI OR 7429-90-5/BI OR 7439-89-6/BI OR 7440-02-0/BI OR 7440-05-3/BI OR 7440-06-4/BI OR 7440-22-4/B I OR 7440-50-8/BI OR 7440-57-5/BI OR 7631-86-9/BI OR 7782-42-5/BI OR 7789-75-5/BI OR 87209-95-8/BI OR 9003-39-8/BI OR 9004-81-3/BI OR 9005-65-6/BI OR 9016-45-9/BI OR 9036-19-5/BI OR 91727-33-2/BI OR 919-30-2/BI)
L6	16 SEA FILE=REGISTRY ABB=ON L5 AND 1-3/M
L7	1 SEA FILE=REGISTRY ABB=ON L5 AND BORON
L9	1 SEA FILE=REGISTRY ABB=ON L5 AND TALC
L10	1 SEA FILE=REGISTRY ABB=ON MICA/CN
L11	18 SEA FILE=REGISTRY ABB=ON L6 OR L7 OR L9 OR L10
L13	86604 SEA FILE=HCAPLUS ABB=ON GLASS?(3A) (FIBER# OR FIBRE#)
L14	11434 SEA FILE=HCAPLUS ABB=ON L13(6A) (COAT? OR IMPREGNAT?)
L15	1389400 SEA FILE=HCAPLUS ABB=ON L11 OR INORG?(3A) PARTICL?
L16	2664 SEA FILE=HCAPLUS ABB=ON L14 AND (L15 OR BN OR BORON NITRIDE OR GRAPHITE OR MOS2 OR TALC OR MOLYBDENUM(W) (SULFIDE OR DISULFIDE) OR MICA OR TALC OR KAOLINITE OR GYPSUM OR CACO3 OR CALCIUM CARBONATE OR CAF2 OR CALCIUM FLUORIDE OR ZNO OR ZINC OXIDE)
L17	2727 SEA FILE=HCAPLUS ABB=ON L14 AND (MICA OR TALC OR ALUMINUM OR CU OR COPPER OR IRON OR FE OR AU OR GOLD OR NI OR NICKEL OR PD OR PALLADIUM)
L18	341 SEA FILE=HCAPLUS ABB=ON L14 AND (PT OR PLATINUM OR SILVER OR ZNS2 OR ZINC SULFIDE OR AG)
L19	6 SEA FILE=HCAPLUS ABB=ON L14 AND ZNS
L20	3632 SEA FILE=HCAPLUS ABB=ON (L16 OR L17 OR L18 OR L19)
L21	6 SEA FILE=HCAPLUS ABB=ON L20 AND MOH#
L22	1418 SEA FILE=HCAPLUS ABB=ON L14 AND (HOLLOW?(3A) ORG?(3A) PARTICL? OR ?ACRYL?)(S)? POLYMER?)
L23	7 SEA FILE=HCAPLUS ABB=ON L22 AND MOH#
L24	481 SEA FILE=HCAPLUS ABB=ON L14 AND (COMPOSITE(3A) PARTICL? OR ?CARBONAT? OR ?SILCA? OR NANOCLAY?)
L25	6 SEA FILE=HCAPLUS ABB=ON L24 AND MOH#
L26	7 SEA FILE=HCAPLUS ABB=ON L21 OR L23 OR L25
L45	192 SEA FILE=HCAPLUS ABB=ON (L20 OR L22 OR L24) AND STRAND#
L46	98 SEA FILE=HCAPLUS ABB=ON L45 AND (COMPOSITION? OR COMPNS?)
L47	137 SEA FILE=HCAPLUS ABB=ON L45 AND STRAND#(4A) (FIBER# OR FIBRE#)
L48	71 SEA FILE=HCAPLUS ABB=ON L46 AND L47
L49	13 SEA FILE=HCAPLUS ABB=ON L48 AND POWDER?
L53	0 SEA FILE=COMPENDEX ABB=ON L26 OR L49

=> DUP REM L50 L44 L51

FILE 'HCAPLUS' ENTERED AT 17:15:23 ON 05 FEB 2003  
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FILE 'WPIX' ENTERED AT 17:15:23 ON 05 FEB 2003  
 COPYRIGHT (C) 2003 THOMSON DERWENT

FILE 'JAPIO' ENTERED AT 17:15:23 ON 05 FEB 2003  
 COPYRIGHT (C) 2003 Japanese Patent Office (JPO)- JAPIO  
 PROCESSING COMPLETED FOR L50  
 PROCESSING COMPLETED FOR L44  
 PROCESSING COMPLETED FOR L51  
L54 52 DUP REM L50 L44 L51 (10 DUPLICATES REMOVED)

=> D L54 ALL 1-52 HITSTR

*vjot*  
 L54 ANSWER 1 OF 52 HCAPLUS COPYRIGHT 2003 ACS  
 AN 2002:240679 HCAPLUS  
 DN 136:287850  
 TI Glass fiber resin coating for inhibiting conductive anodic filament formation in electronic supports for printed circuit boards  
 IN Dana, David E.; Lawton, Ernest L.; Velpari, Vedagiri; Robertson, Walter J.; Rice, William B.; Lammon-Hilinski, Kami; Wu, Xiang; Novich, Bruce E.  
 PA PPG Industries Ohio, Inc., USA  
 SO PCT Int. Appl., 131 pp.  
 CODEN: PIXXD2  
 DT Patent  
 LA English  
 IC ICM C03C025-10  
 ICS H05K001-03  
 CC 76-14 (Electric Phenomena)  
 Section cross-reference(s): 38, 57  
 FAN.CNT 4

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2002024592	A1	20020328	WO 2001-US5839	20010222
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
	RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
	AU 2001038668	A5	20020402	AU 2001-38668	20010222
PRAI	US 2000-233619P	P	20000918		
	US 2001-783539	A	20010215		
	WO 2001-US5839	W	20010222		

AB The present invention provides an at least partially coated fiber strand comprising a plurality of fibers having a resin compatible coating compn. on at least a portion of a surface of at least one of the fibers, the resin compatible coating compn. comprising: (a) a plurality of discrete particles comprising a silicate having a high affinity for metal ions; and (b) at least one film-forming material.  
 ST glass fiber resin printed circuit board; cation exchanger glass fiber resin circuit board  
 IT Clays, uses

RL: TEM (Technical or engineered material use); USES (Uses)  
(attapulgitic; **glass fiber resin coating**  
for inhibiting conductive anodic filament formation in electronic  
supports for printed circuit boards)

IT Clays, uses  
RL: TEM (Technical or engineered material use); USES (Uses)  
(bentonitic; **glass fiber resin coating**  
for inhibiting conductive anodic filament formation in electronic  
supports for printed circuit boards)

IT Cation exchangers  
**Fiber-reinforced composites**  
Nanoparticles  
Porous materials  
Printed circuit boards  
(**glass fiber resin coating** for inhibiting  
conductive anodic filament formation in electronic supports for printed  
circuit boards)

IT **Acrylic polymers**, uses  
Aminoplasts  
Clay minerals  
Epoxy resins, uses  
**Glass fibers**, uses  
**Mica-group minerals**, uses  
Phenolic resins, uses  
Polyamides, uses  
**Polycarbonates**, uses  
Polyesters, uses  
Polygermanes  
Polyolefins  
Polyphosphazenes  
Polysilanes  
Polysiloxanes, uses  
Polysiloxanes, uses  
Polyurethanes, uses  
Silicates, uses  
Zeolite MCM-41  
RL: TEM (Technical or engineered material use); USES (Uses)  
(**glass fiber resin coating** for inhibiting  
conductive anodic filament formation in electronic supports for printed  
circuit boards)

IT Clays, uses  
RL: TEM (Technical or engineered material use); USES (Uses)  
(montmorillonitic; **glass fiber resin**  
**coating** for inhibiting conductive anodic filament formation in  
electronic supports for printed circuit boards)

IT Vinyl compounds, uses  
RL: TEM (Technical or engineered material use); USES (Uses)  
(polymers; **glass fiber resin coating** for  
inhibiting conductive anodic filament formation in electronic supports  
for printed circuit boards)

IT Plastics, uses  
RL: TEM (Technical or engineered material use); USES (Uses)  
(thermosetting; **glass fiber resin coating**  
for inhibiting conductive anodic filament formation in electronic  
supports for printed circuit boards)

IT 1318-93-0, Montmorillonite, uses  
RL: TEM (Technical or engineered material use); USES (Uses)  
(K 10; **glass fiber resin coating** for  
inhibiting conductive anodic filament formation in electronic supports  
for printed circuit boards)

IT 1318-00-9, Vermiculite 1319-41-1, Saponite 12173-60-3, Illite  
12174-06-0, Nontronite 14998-27-7, Chlorite 63800-37-3, Sepiolite  
RL: TEM (Technical or engineered material use); USES (Uses)  
(clay contg.; glass fiber resin coating  
for inhibiting conductive anodic filament formation in electronic  
supports for printed circuit boards)

IT 12173-47-6, Hectorite  
RL: TEM (Technical or engineered material use); USES (Uses)  
(clay; glass fiber resin coating for  
inhibiting conductive anodic filament formation in electronic supports  
for printed circuit boards)

IT 15158-11-9, Copper(2+), uses  
RL: NUU (Other use, unclassified); USES (Uses)  
(exchange capacity for; glass fiber resin  
coating for inhibiting conductive anodic filament formation in  
electronic supports for printed circuit boards)

IT 1317-33-5, Molybdenum sulfide (MoS<sub>2</sub>)  
, uses 7704-34-9, Sulfur polymer, uses 7782-42-5, Graphite,  
uses 7782-49-2D, Selenium, polymer 10043-11-5, Boron  
nitride (BN), uses 12039-55-3, Tantalum selenide  
(TaSe<sub>2</sub>) 12058-18-3, Molybdenum selenide (MoSe<sub>2</sub>) 12067-46-8, Tungsten  
selenide (WSe<sub>2</sub>) 12138-09-9, Tungsten sulfide (WS<sub>2</sub>) 12143-72-5,  
Tantalum sulfide (TaS<sub>2</sub>) 405515-61-9, Nanocor 3869 405515-62-0, Nanocor  
398 405515-63-1, E 145CWC  
RL: TEM (Technical or engineered material use); USES (Uses)  
(glass fiber resin coating for inhibiting  
conductive anodic filament formation in electronic supports for printed  
circuit boards)

RE.CNT 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

- (1) Bohrn; US 4877484 A 1989 HCPLUS
- (2) Corning Glass Works; EP 0283608 A 1988 HCPLUS
- (3) E I Du Pont de Nemours And Company; WO 9727244 A 1997 HCPLUS
- (4) Matsushita Electric Works; JP 05140419 A 1993 HCPLUS
- (5) Ppg Ind Ohio Inc; WO 9944955 A 1999 HCPLUS

IT 1317-33-5, Molybdenum sulfide (MoS<sub>2</sub>)  
, uses 10043-11-5, Boron nitride (BN), uses  
RL: TEM (Technical or engineered material use); USES (Uses)  
(glass fiber resin coating for inhibiting  
conductive anodic filament formation in electronic supports for printed  
circuit boards)

RN 1317-33-5 HCPLUS

CN Molybdenum sulfide (MoS<sub>2</sub>) (8CI, 9CI) (CA INDEX NAME)

S==Mo==S

RN 10043-11-5 HCPLUS  
CN Boron nitride (BN) (8CI, 9CI) (CA INDEX NAME)

B==N

L54 ANSWER 2 OF 52 HCPLUS COPYRIGHT 2003 ACS  
AN 2002:220472 HCPLUS  
DN 136:266892

KATHLEEN FULLER EIC 1700/PARKER LAW 308-4290

TI The method for forming resin compatible fabric of coated  
glass fibers for laminated printed circuit boards

IN Dana, David E.

PA PPG Industries Ohio, Inc., USA

SO PCT Int. Appl., 30 pp.

CODEN: PIXXD2

DT Patent

LA English

IC ICM B32B017-02

ICS B32B017-04; B32B027-04; B32B027-12

CC 57-1 (Ceramics)

Section cross-reference(s): 39, 76

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2002022354	A1	20020321	WO 2001-US29005	20010918
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
	AU 2002011235	A5	20020326	AU 2002-11235	20010918
PRAI	US 2000-233140P	P	20000918		
	WO 2001-US29005	W	20010918		

AB The method for forming a resin compatible fabric includes (a) forming a fabric with a plurality of glass fiber **strands**, wherein at least one of the plurality of fiber **strands** includes a plurality of fibers and at least one of the plurality of fibers includes an at least partial coating having .gtoreq.1 starch material with .gtoreq.1 hydroxyl group; (b) breaking a bond between a hydrogen atom of a hydroxyl group of a first starch mol. of the starch material with an oxygen atom of a second starch mol. of the starch material to form at least one unreacted hydroxyl group on the first starch mol.; and (c) reacting at least one functional group of a second material (e.g., isocyanatosilane) with the unreacted hydroxyl group of the starch material to form a grafted starch material after interweaving. Fiber **strands** comprise glass fibers selected from E-glass fibers, D-glass fibers, S-glass fibers, Q-glass fibers, A-glass fibers, and E-glass deriv. fibers. The functional group is selected from an isocyanate group or an acid anhydride group, and the second material is selected from isocyanatosilanes, Me isocyanate, Bu isocyanate, cyclohexyl isocyanate, octadecyl isocyanate, Ph isocyanate, chlorophenyl isocyanate, iso-Pr isocyanate, Pr isocyanate, dichlorophenyl isocyanate, fatty acid ester isocyanates, and aliph. isocyanates, acetic anhydride, maleic anhydride, succinic anhydride, formic acid, acetic acid, propionic acid, glutaric acid, butyric acid, palmitic acid, lauric acid and stearic acid, vinyl acetate, vinyl butyrate, benzoyl chloride and cinnamoyl chloride. The blocking agent is selected from secondary and tertiary alcs., active methylene compds., oximes, lactams, phenols, and heterocyclic hydroxy compds. The catalyst material is selected from pyridine and tertiary amines. Breaking comprises soaking the fabric in a polar solvent selected from sodium hydroxide, potassium hydroxide, pyridine, DMF, and N-methylpyrrolidone, or 5 % soln. of hexamethylene diisocyanate or phenol isocyanate in pyridine. A printed circuit board consists of (a) the resin compatible fabric, (b) a matrix material applied to the fabric, and (c) at least one elec. conductive material comprising circuits positioned on surface of the printed circuit board. Non-glass

inorg. fibers suitable for use in the present invention may include ceramic fibers formed from silicon carbide, carbon, **graphite**, mullite, **aluminum oxide**, and piezoelec. ceramic materials. Suitable org. fiber material include cotton, cellulose, natural rubber, flax, ramie, hemp, sisal, and wool. Suitable **polymeric** fibers include those formed from polyamides (such as nylon and aramids), thermoplastic polyesters (such as polyethylene terephthalate and polybutylene terephthalate), **acrylics** (such as **polyacrylonitriles**), polyolefins, polyurethanes, and vinyl **polymers** (such as polyvinyl alc.). Suitable thermoplastic matrix materials include polyolefins, polyamides, thermoplastic polyurethanes, thermoplastic polyesters, vinyl polymers, and mixts. thereof, polyimides, polyether sulfones, polyphenyl sulfones, polyetherketones, polyphenylene oxides, polyphenylene sulfides, polyacetals, polyvinyl chlorides, and **polycarbonates**.

- ST glass fiber fabric resin flexible printed circuit board
- IT Glass fibers, uses
  - RL: TEM (Technical or engineered material use); USES (Uses) (E-glass, D-glass, S-glass, Q-glass, and A-glass fibers; method for forming resin compatible fabric of **coated glass fibers** for laminated printed circuit boards)
- IT Antioxidants
  - Fireproofing agents
  - Lubricants
  - Pigments, nonbiological
  - UV stabilizers
    - (additive in thermoplastic matrix material; method for forming resin compatible fabric of **coated glass fibers** for laminated printed circuit boards)
- IT Polyamide fibers, uses
  - RL: TEM (Technical or engineered material use); USES (Uses) (aramid, fibers; method for forming resin compatible fabric of **coated glass fibers** for laminated printed circuit boards)
- IT Lactams
  - Oximes
  - Phenols, uses
    - RL: MOA (Modifier or additive use); USES (Uses) (blocking agent; method for forming resin compatible fabric of **coated glass fibers** for laminated printed circuit boards)
- IT Glass fiber fabrics
  - Resins
    - RL: TEM (Technical or engineered material use); USES (Uses) (component of laminated printed circuit boards; method for forming resin compatible fabric of **coated glass fibers** for laminated printed circuit boards)
- IT Isocyanates
  - RL: MOA (Modifier or additive use); USES (Uses) (fatty acid ester isocyanates, component of grafted org. coating material; method for forming resin compatible fabric of **coated glass fibers** for laminated printed circuit boards)
- IT Flax
  - Manila hemp (*Musa textilis*)
  - Ramie (*Boehmeria nivea*)
    - (fibers; method for forming resin compatible fabric of **coated glass fibers** for laminated printed circuit boards)
- IT Natural rubber, uses
  - Polyesters, uses
    - RL: TEM (Technical or engineered material use); USES (Uses)

- (fibers; method for forming resin compatible fabric of **coated glass fibers** for laminated printed circuit boards)
- IT Hydroxy compounds
  - RL: MOA (Modifier or additive use); USES (Uses)  
(heterocyclic, blocking agent; method for forming resin compatible fabric of **coated glass fibers** for laminated printed circuit boards)
- IT Printed circuit boards
  - (laminated, flexible; method for forming resin compatible fabric of **coated glass fibers** for laminated printed circuit boards)
- IT Cotton fibers
  - Wool
    - (method for forming resin compatible fabric of **coated glass fibers** for laminated printed circuit boards)
- IT Polyamide fibers, uses
  - Sisal
    - RL: TEM (Technical or engineered material use); USES (Uses)  
(method for forming resin compatible fabric of **coated glass fibers** for laminated printed circuit boards)
- IT Electric circuits
  - (on printed circuit board; method for forming resin compatible fabric of **coated glass fibers** for laminated printed circuit boards)
- IT Polyketones
  - Polysulfones, uses
    - RL: TEM (Technical or engineered material use); USES (Uses)  
(polyether-, thermoplastic matrix material; method for forming resin compatible fabric of **coated glass fibers** for laminated printed circuit boards)
- IT Polyethers, uses
  - RL: TEM (Technical or engineered material use); USES (Uses)  
(polyketone-, thermoplastic matrix material; method for forming resin compatible fabric of **coated glass fibers** for laminated printed circuit boards)
- IT Polyethers, uses
  - RL: TEM (Technical or engineered material use); USES (Uses)  
(polysulfone-, thermoplastic matrix material; method for forming resin compatible fabric of **coated glass fibers** for laminated printed circuit boards)
- IT Alcohols, uses
  - RL: MOA (Modifier or additive use); USES (Uses)  
(secondary, blocking agent; method for forming resin compatible fabric of **coated glass fibers** for laminated printed circuit boards)
- IT Coating materials
  - (starch-based; method for forming resin compatible fabric of **coated glass fibers** for laminated printed circuit boards)
- IT Alcohols, uses
  - RL: MOA (Modifier or additive use); USES (Uses)  
(tertiary, blocking agent; method for forming resin compatible fabric of **coated glass fibers** for laminated printed circuit boards)
- IT Amines, uses
  - RL: CAT (Catalyst use); USES (Uses)  
(tertiary, catalyst; method for forming resin compatible fabric of **coated glass fibers** for laminated printed circuit boards)
- IT Polyamides, uses

**Polycarbonates, uses**  
 Polyesters, uses  
 Polyimides, uses  
 Polyoxymethylenes, uses  
 Polyoxyphenylenes  
 Polythiophenylenes  
 Polyurethanes, uses  
 RL: TEM (Technical or engineered material use); USES (Uses)  
 (thermoplastic matrix material; method for forming resin compatible  
 fabric of **coated glass fibers** for  
 laminated printed circuit boards)

IT 24801-88-5, A 1310  
 RL: MOA (Modifier or additive use); USES (Uses)  
 (A 1310, component of grafted org. coating material; method for forming  
 resin compatible fabric of **coated glass**  
**fibers** for laminated printed circuit boards)

IT 110-86-1, Pyridine, uses  
 RL: CAT (Catalyst use); USES (Uses)  
 (catalyst; method for forming resin compatible fabric of **coated**  
**glass fibers** for laminated printed circuit boards)

IT 409-21-2, Silicon carbide (SiC), uses  
 RL: TEM (Technical or engineered material use); USES (Uses)  
 (ceramic fibers; method for forming resin compatible fabric of  
**coated glass fibers** for laminated printed  
 circuit boards)

IT 57-10-3, Palmitic acid, uses 57-11-4, Stearic acid, uses 64-18-6,  
 Formic acid, uses 64-19-7, Acetic acid, uses 79-09-4, Propionic acid,  
 uses 98-88-4, Benzoyl chloride 102-92-1, Cinnamoyl chloride  
 103-71-9, Phenyl isocyanate, uses 107-92-6, Butyric acid, uses  
 108-05-4, Vinyl acetate, uses 108-24-7, Acetic anhydride 108-30-5,  
 Succinic anhydride, uses 108-31-6, Maleic anhydride, uses 110-78-1,  
 Propyl isocyanate 110-94-1, Glutaric acid 111-36-4, n-Butyl isocyanate  
 112-96-9, Octadecyl isocyanate 123-20-6, Vinyl butyrate 143-07-7,  
 Lauric acid, uses 624-83-9, Methyl isocyanate 1795-48-8, Isopropyl  
 isocyanate 3173-53-3, Cyclohexyl isocyanate 13730-13-7,  
 Isocyanatosilane 25550-53-2 51134-03-3, Chlorophenyl isocyanate  
 405081-43-8, Baybond 116  
 RL: MOA (Modifier or additive use); USES (Uses)  
 (component of grafted org. coating material; method for forming resin  
 compatible fabric of **coated glass fibers**  
 for laminated printed circuit boards)

IT 1302-93-8, Mullite 1344-28-1, **Aluminum oxide**, uses  
 7440-44-0, Carbon, uses 7782-42-5, **Graphite**, uses 9002-89-5,  
 Polyvinyl alcohol 9004-34-6, Cellulose, uses 10043-11-5,  
**Boron nitride**, uses 24968-12-5, Polybutylene  
 terephthalate 25038-59-9, Polyethylene terephthalate, uses  
 RL: TEM (Technical or engineered material use); USES (Uses)  
 (fibers; method for forming resin compatible fabric of **coated**  
**glass fibers** for laminated printed circuit boards)

IT 9005-25-8, Starch, uses  
 RL: MOA (Modifier or additive use); USES (Uses)  
 (grafted, prep'd. from corn, potatoes, wheat, waxy maize, sago, rice,  
 tapioca, and milo; method for forming resin compatible fabric of  
**coated glass fibers** for laminated printed  
 circuit boards)

IT 68-12-2, Dimethylformamide, processes 822-06-0, Hexamethylene  
 diisocyanate 872-50-4, N-Methylpyrrolidone, processes 1310-58-3,  
 Potassium hydroxide, processes 1310-73-2, Sodium hydroxide, processes  
 RL: MOA (Modifier or additive use); PEP (Physical, engineering or chemical  
 process); PROC (Process); USES (Uses)

(polar solvent; method for forming resin compatible fabric of **coated glass fibers** for laminated printed circuit boards)

IT 107-13-1, Acrylonitrile, uses  
 RL: TEM (Technical or engineered material use); USES (Uses)  
 (poly, fibers; method for forming resin compatible fabric of **coated glass fibers** for laminated printed circuit boards)

IT 127-63-9, Phenylsulfone  
 RL: TEM (Technical or engineered material use); USES (Uses)  
 (poly, thermoplastic matrix material; method for forming resin compatible fabric of **coated glass fibers** for laminated printed circuit boards)

IT 461-58-5, Dicyandiamide 693-98-1, 2-Methylimidazole 1320-67-8, DOWANOL  
 PM 9002-86-2, Polyvinyl chloride 40039-93-8, EPON 1123A80  
 RL: TEM (Technical or engineered material use); USES (Uses)  
 (thermoplastic matrix material; method for forming resin compatible fabric of **coated glass fibers** for laminated printed circuit boards)

RE.CNT 2 THERE ARE 2 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

(1) Dana; US 5091465 A 1992 HCAPLUS  
 (2) Dana; US 5908689 A 1999

IT 10043-11-5, Boron nitride, uses  
 RL: TEM (Technical or engineered material use); USES (Uses)  
 (fibers; method for forming resin compatible fabric of **coated glass fibers** for laminated printed circuit boards)

RN 10043-11-5 HCAPLUS  
 CN Boron nitride (BN) (8CI, 9CI) (CA INDEX NAME)

B≡N

✓54 ANSWER 3 OF 52 HCAPLUS COPYRIGHT 2003 ACS  
 AN 2002:965086 HCAPLUS  
 DN 138:40101  
 TI Coating solubility of **impregnated glass fiber strands**  
 IN Dana, David E.; Velpari, Vedagiri; Lammon-Hilinski, Kami; Lawton, Ernest L.; Novich, Bruce E.; Rice, William B.; Robertson, Walter J.; Wu, Xiang  
 PA USA  
 SO U.S. Pat. Appl. Publ., 42 pp.  
 CODEN: USXXCO  
 DT Patent  
 LA English  
 IC ICM B32B017-02  
 ICS D04H001-74  
 NCL 442285000; 442180000; 442417000; 442367000  
 CC 37-6 (Plastics Manufacture and Processing)  
 Section cross-reference(s): 42

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2002193027	A1	20021219	US 2001-795621	20010228

PRAI US 2001-795621 20010228

AB The present invention provides a fabric comprising **fiber strands** having a coating that is more sol. in a resin matrix material than conventional slashing and/or silane finishes. As a result, the coating

does not have to be removed prior to combining the coated fiber **strand** with a resin matrix material. These fabrics can be used in a wide variety of applications, such as reinforcements for composites, such as printed circuit boards. One nonlimiting embodiment of the invention provides a fabric comprising at least one fiber **strand** comprising a plurality of fibers and having a resin compatible coating compn. on at least a surface of the at least one fiber **strand**, wherein the fabric has an LOI extd. of at least 30% as detd. after (a) soaking the fabric in acetone for 5 min at about 25.degree., (b) drying the fabric in an oven at 130.degree. for 45 min to remove the acetone, and (c) heating the fabric to 675.degree. for 30 min to burn off any remaining coating compn. on the at least one fiber **strand**. Another nonlimiting embodiment of the present invention provides laminate comprising: a) at least one matrix material; and b) at least one fabric comprising at least one fiber **strand** comprising a plurality of fibers and having a resin compatible coating compn. on at least a surface of the at least one fiber **strand**, wherein the fabric has an LOI extd. of at least 30% as detd. after (a) soaking the fabric in acetone for 5 min at 25.degree., (b) drying the fabric in an oven at 130.degree. for 45 min to remove the acetone, and (c) heating the fabric to 675.degree. for 30 min to burn off any remaining coating compn. on the at least one fiber **strand**. The present invention also provides an electronic support comprising this laminate.

- ST **glass fiber coating** soly resin matrix
- IT Epoxy resins, uses
  - RL: TEM (Technical or engineered material use); USES (Uses)
    - (acrylates, coating; coating soly. of impregnated glass fiber strands)
- IT Textiles
  - (coating soly. of impregnated glass fiber strands)
- IT Glass fibers, uses
  - Polyphosphazenes
    - RL: TEM (Technical or engineered material use); USES (Uses)
      - (coating soly. of impregnated glass fiber strands)
- IT Acrylic polymers, uses
  - Aminoplasts
  - Borides
  - Carbides
    - Carbonates**, uses
  - Epoxy resins, uses
  - Hydroxides (inorganic)
  - Metals, uses
  - Nitrides
  - Oxides (inorganic), uses
  - Phenolic resins, uses
  - Polyamides, uses
    - Polycarbonates**, uses
  - Polyesters, uses
  - Polygermanes
  - Polyolefins
  - Polysilanes
  - Polysiloxanes, uses
  - Silicates, uses
  - Sulfates, uses
  - Sulfides, uses
    - RL: TEM (Technical or engineered material use); USES (Uses)
      - (coating; coating soly. of impregnated glass fiber strands)

IT Polyurethanes, uses  
 RL: TEM (Technical or engineered material use); USES (Uses)  
 (thermoplastic, coating; coating soly. of  
 impregnated glass fiber strands)

IT Polyurethanes, uses  
 RL: TEM (Technical or engineered material use); USES (Uses)  
 (thermosetting, coating; coating soly. of  
 impregnated glass fiber strands)

IT Polyesters, uses  
 RL: TEM (Technical or engineered material use); USES (Uses)  
 (unsatd., coating; coating soly. of  
 impregnated glass fiber strands)

IT 540-10-3, STEPANTEX 653 9003-39-8, PVPK-30  
 RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)  
 (coating; coating soly. of impregnated  
 glass fiber strands)

IT 2530-83-8, A-187 2530-85-0, A-174 7704-34-9D, Sulfur, polymeric  
 7782-42-5, Graphite, uses 7782-49-2D, Selenium, polymeric  
 9005-65-6, TMAZ-81 9036-19-5, MACOL OP-10 10043-11-5,  
 Releasecoat Conc 25, uses 67185-58-4, EMERY 6717 226558-99-2, MAZU  
 DF-136 285980-72-5, ROPAQUE OP-96  
 RL: TEM (Technical or engineered material use); USES (Uses)  
 (coating; coating soly. of impregnated  
 glass fiber strands)

IT 10043-11-5, Releasecoat Conc 25, uses  
 RL: TEM (Technical or engineered material use); USES (Uses)  
 (coating; coating soly. of impregnated  
 glass fiber strands)

RN 10043-11-5 HCAPLUS

CN Boron nitride (BN) (8CI, 9CI) (CA INDEX NAME)

B≡N

L54 ANSWER~~4 OF 52~~-WPIX (C) 2003 THOMSON DERWENT  
 AN 2003-015741 [01] WPIX  
 CR 1999-551017 [46]; 1999-551018 [46]; 1999-551019 [46]; 1999-551020 [46];  
 1999-551021 [46]; 1999-551022 [46]; 2000-350122 [30]; 2000-364682 [31];  
 2001-244130 [25]; 2001-257406 [26]; 2001-257524 [26]; 2001-389548 [41];  
 2002-017346 [02]; 2002-034088 [04]; 2002-034089 [04]; 2002-041186 [05];  
 2002-041187 [05]; 2002-041188 [05]; 2002-049008 [06]; 2002-049009 [06];  
 2002-689464 [74]; 2002-730929 [79]  
 DNN N2003-011696 DNC C2003-003753  
 TI Prepreg for electronic support used for circuit board, comprises matrix  
 material and non-degreased fabric comprising strands having specific shape  
 factor, and having coating compatible with matrix material.  
 DC A14 A17 A28 A85 F03 L03 P73 V04 X12  
 IN LAMMON-HILINSKI, K; LAWTON, E L; NOVICH, B E; RICE, W B; ROBERTSON, W J;  
VELPARI, V; WU, X  
 PA (LAMM-I) LAMMON-HILINSKI K; (LAWT-I) LAWTON E L; (NOVI-I) NOVICH B E;  
 (RICE-I) RICE W B; (ROBE-I) ROBERTSON W J; (VELP-I) VELPARI V; (WUXX-I) WU  
 X  
 CYC 1  
 PI US 2002086598 A1 20020704 (200301)\* 47p B32B005-02  
 ADT US 2002086598 A1 Provisional US 2000-233460P 20000918, US 2001-793900  
 20010228  
 PRAI US 2000-233460P 20000918; US 2001-793900 20010228

IC ICM B32B005-02  
 ICS B32B027-20; D03D015-00  
 AB US2002086598 A UPAB: 20030101

NOVELTY - A prepreg comprises a matrix material and at least one non-degreased fabric comprising at least one strand containing several fibers. At least a portion of fabric comprises a coating which is compatible with the matrix material and at least one strand has a shape factor of greater than 1, measured in the warp direction or the fill direction of at least one non-degreased fabric.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are included for the following:

- (1) A laminate for electronic support comprising matrix material and at least one non-degreased fabric;
- (2) An electronic support comprising at least one prepreg; and
- (3) An electronic circuit board comprising at least one laminate.

USE - Used for laminate used as electronic support for circuit board (claimed) used in microwave, radio frequency interference and electromagnetic interference applications; for active electronic components; passive electronic components; printed circuits; integrated circuits; semiconductor devices and hard devices such as connectors, sockets, retaining clips and heat sinks.

ADVANTAGE - The fiber strands has unique coating that inhibit abrasion and breakage of fibers during processing and provides good wet-through, wet-out and dispersion properties to composites. Laminate with good strength, thermal stability, hydrolytic stability, low corrosion and reactivity in presence of high humidity, reactive acids and alkalies, and compatibility with variety of polymeric matrix material is obtained. Need for removing coating prior to lamination is inhibited. Coated fiber strands provide good processability in weaving and knitting, low fuzz and halos, low broken filaments, low strand tension, high fliability and low insertion time. Hence printed circuit board with reduced surface defects can be obtained. Prepreg inhibit thermal degradation and/or deterioration of circuit components, **glass fibers** and polymeric matrix material. **Coated** fibers provide higher thermal conductivity phase than matrix material, thereby reducing differential thermal expansion and warpage of electronic circuit board and improving solder joint reliability. Coated fiber strand lessen or eliminate the need for incorporating thermally conductive material in matrix resin, which improves laminate manufacturing operations and lowers costly matrix material supply tank purging and maintenance. The fiber strand has high strand openness. The fabric reduces cycle time, eliminate capital equipment, reduces fabric handling and labor cost.

Dwg.0/10

FS CPI EPI GMPI  
 FA AB  
 MC CPI: A11-B09A1; A12-E07A; A12-S08D2; F02-A03A; F04-E; L03-H04E3  
 EPI: V04-Q05; V04-R07; V04-R07L; X12-E02X

*Get*

L54	ANSWER 5 OF 52 WPIX (C) 2003 THOMSON DERWENT
AN	2002-689464 [74] WPIX
CR	1999-551017 [46]; 1999-551018 [46]; 1999-551019 [46]; 1999-551020 [46]; 1999-551021 [46]; 1999-551022 [46]; 2000-350122 [30]; 2000-364682 [31]; 2001-244130 [25]; 2001-257406 [26]; 2001-257524 [26]; 2001-389548 [41]; 2002-017346 [02]; 2002-034088 [04]; 2002-034089 [04]; 2002-041186 [05]; 2002-041187 [05]; 2002-041188 [05]; 2002-049008 [06]; 2002-049009 [06]; 2002-730929 [79]; 2003-015741 [01]
DNN	N2002-543754 DNC C2002-194842
TI	Inhibiting abrasive wear of fiber strand comprising glass fiber(s) by applying composition of polymeric material(s) and inorganic solid lubricant particles to glass fiber

surface, drying, and sliding glass fiber **strand** to contact surface.

DC A85 E37 L01 P42  
IN LAMMON-HILINSKI, K; LAWTON, E L; NOVICH, B E; RICE, W B; ROBERTSON, W J;  
~~VELPARI, V~~; WU, X  
PA (PITT) PPG IND OHIO INC  
CYC 1  
PI US 6419981 B1 20020716 (200274)\* 60p B05D003-02  
ADT US 6419981 B1 CIP of US 1998-34056 19980303, CIP of US 1998-34077  
19980303, CIP of US 1998-34078 19980303, CIP of US 1998-34525 19980303,  
CIP of US 1998-34663 19980303, CIP of US 1998-130270 19980806, CIP of US  
1998-170566 19981013, CIP of US 1998-170578 19981013, Provisional US  
1999-133075P 19990507, Provisional US 1999-133076P 19990507, Provisional  
US 1999-136110P 19990526, Provisional US 1999-146337P 19990730,  
Provisional US 1999-146605P 19990730, Provisional US 1999-146862P  
19990803, CIP of WO 1999-US21443 19991008, Provisional US 2000-183562P  
20000218, Cont of US 2000-527034 20000316, Cont of US 2000-548379  
20000412, Cont of US 2000-568916 20000511, US 2000-620524 20000720  
PRAI US 2000-620524 20000720; US 1998-34056 19980303; US 1998-34077  
19980303; US 1998-34078 19980303; US 1998-34525 19980303; US  
1998-34663 19980303; US 1998-130270 19980806; US 1998-170566  
19981013; US 1998-170578 19981013; US 1999-133075P 19990507; US  
1999-133076P 19990507; US 1999-136110P 19990526; US 1999-146337P  
19990730; US 1999-146605P 19990730; US 1999-146862P 19990803; WO  
1999-US21443 19991008; US 2000-183562P 20000218; US 2000-527034  
20000316; US 2000-548379 20000412; US 2000-568916 20000511  
IC ICM B05D003-02  
AB US 6419981 B UPAB: 20030117  
NOVELTY - Abrasive wear of a fiber **strand** comprising glass fiber(s) is inhibited by:  
(a) applying a composition containing polymeric material(s) and **inorganic** solid lubricant **particles** to (part of) a surface of the glass fiber,  
(b) partially drying the composition, and  
(c) sliding the glass fiber **strand** to contact surface asperities of a solid object.  
DETAILED DESCRIPTION - Inhibition of abrasive wear of a fiber **strand** (10) comprising at least one glass fiber (12, 23, 25) involves:  
(a) applying a composition containing polymeric material(s) and **inorganic** solid lubricant **particles** to (part of) a surface of the glass fiber  
(b) at least partially drying the composition to form a sized glass fiber **strand** having a residue of the composition upon its surface and  
(c) sliding the glass fiber **strand** to contact surface asperities of a solid object, such that abrasive wear of the glass fiber is inhibited by the **inorganic** solid lubricant **particles**  
The surface asperities have a hardness value which is greater than that of the glass fiber.  
USE - Inhibiting abrasive wear of a fiber **strand**. The **strands** are used for making composites, particularly laminates for electronic support applications, and provide a fabric useful for printed circuit board applications. They can be used in an air jet weaving process, or as a continuous reinforcement for an electronic circuit board.  
ADVANTAGE - The method provides fiber **strands** having a unique coating that not only inhibits abrasion and breakage of the fibers during processing but also provides good wet-through, wet-out and dispersion properties in formation of composites; good processability in

weaving and knitting; low fuzz and halos; low broken filaments; low **strand** tension; high fliability; and low insertion time. The coated fiber **strands** provide a fabric with few surface defects. The coating facilitates thermal conduction along surfaces of the fibers. When used as continuous reinforcement for an electronic circuit board, the **coated glass fibers** conduct heat away from the electronic components, and thus inhibit thermal degradation and/or deterioration of the circuit components, glass fibers and/or polymeric matrix material. They provide a higher thermal conductivity phase than the matrix material i.e. a preferential path for heat dissipation and distribution, thus reducing differential thermal expansion and warpage of the electronic circuit board and improving solder joint reliability. They lessen or eliminate the need for incorporating thermally conductive materials in the matrix resin, which improves laminate manufacturing operations and lowers costly matrix material supply tank purging and maintenance. They possess high **strand** openness, and composites made from the **strands** possess low coefficient of thermal expansion, good flexural strength, good interlaminar bond strength, and good hydrolytic stability, i.e. resistance to migration of water along the fiber/matrix interface. The electronic supports and printed circuit boards exhibit good drillability and resistance to metal migration.

DESCRIPTION OF DRAWING(S) - The figure is a perspective view of a coated fiber **strand**.

**Fiber strand 10**

Glass fibers 12, 23, 25

Dwg.1/13

FS CPI GMPI

FA AB; GI; DCN

MC CPI: A12-E07A; E31-G; E31-N04B; E31-P02B; E31-P02D; E31-P04; E31-P05B; E31-Q03; E34-D02; E34-D03; E35; L01-F03A; L01-L04

L54 ANSWER 6 OF 52 WPIX (C) 2003 THOMSON DERWENT

AN 2003-080939 [08] WPIX

DNC C2003-021467

TI **Aluminum** compound-containing binder useful for **glass** fibers and retains **impregnation** of a hardening resin to the **glass fiber**.

DC A60 E11 E12 F06 L01

PA (NITO) NITTO BOSEKI CO LTD

CYC 1

PI JP 2002294557 A 20021009 (200308)\* 10p D06M013-503

ADT JP 2002294557 A JP 2001-101029 20010330

PRAI JP 2001-101029 20010330

IC ICM D06M013-503

ICS C03C025-10; C08J005-24; C08K003-18; C08K005-00; C08K005-07; C08L101-00; D06M013-517

ICI C08L067:06, D06M101:00

AB JP2002294557 A UPAB: 20030204

NOVELTY - **Aluminum** compound-containing binder comprises:

- (1) an **aluminum** compound;
- (2) a silane coupling agent;
- (3) a coating-forming resin;
- (4) an emulsifier; and
- (5) water.

DETAILED DESCRIPTION - **Aluminum** compound-containing binder of formula (I) comprises:

- (1) an **aluminum** compound;
- (2) a silane coupling agent;
- (3) a coating-forming resin;
- (4) an emulsifier; and

(5) water.

R1, R2 = 1-10C alkyl; and

R3 = 1-22C alkyl or 1-22C alkoxy.

USE - The aluminum compound-containing binder is used for the glass fibers.

ADVANTAGE - The binder retains the impregnation of a hardening resin to the glass fiber and provides a sheet molding compound with enhanced rigidity. A glass fiber-reinforced resin obtained by using the binder has enhanced water resistance.

Dwg.0/1

FS CPI

FA AB; GI; DCN

MC CPI: A08-M01D; A08-M10; A08-S05; A12-S08B; E05-B03; E05-E01; E05-E02; F01-D09B; F03-E01; L01-F03

*not /*  
 154 ANSWER 7 OF 52 HCAPLUS COPYRIGHT 2003 ACS DUPLICATE 1  
 AN 2001:693422 HCAPLUS

DN 135:258625

TI Impregnated glass fiber strands

and products including the same

IN Lawton, Ernest L.; Velpari, Vedagiri; Rice, William B.; Robertson, Walter J.; Novich, Bruce E.; Wu, Xiang; Lammon-Hilinski, Kami

PA PPG Industries Ohio, Inc., USA

SO PCT Int. Appl., 164 pp.

CODEN: PIXXD2

DT Patent

LA English

IC ICM C08J005-08

ICS H05K001-03; C03C025-10

CC 42-10 (Coatings, Inks, and Related Products)

Section cross-reference(s): 38, 40, 76

FAN.CNT 20

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2001068755	A1	20010920	WO 2001-US8739	20010316
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
	RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
PRAI	US 6419981	B1	20020716	US 2000-620524	20000720
	US 2000-527034	A	20000316		
	US 2000-548379	A	20000412		
	US 2000-568916	A	20000511		
	US 2000-620523	A	20000720		
	US 2000-620524	A	20000720		
	US 2000-620525	A	20000720		
	US 2000-620526	A	20000720		
	US 2000-706023	A	20001103 <i>-abnd</i>		
	US 1998-34056	B2	19980303		
	US 1998-34077	B2	19980303		
	US 1998-34078	B2	19980303		
	US 1998-34525	B2	19980303		
	US 1998-34663	B2	19980303		
	US 1998-130270	B2	19980806		
	US 1998-170565	A2	19981013		

US 1998-170566	A2	19981013
US 1998-170578	A2	19981013
US 1998-170579	A2	19981013
US 1998-170780	A2	19981013
US 1998-170781	A2	19981013
US 1999-133075P	P	19990507
US 1999-133076P	P	19990507
US 1999-136110P	P	19990526
US 1999-146337P	P	19990730
US 1999-146605P	P	19990730
US 1999-146862P	P	19990803
WO 1999-US21442	A2	19991008
WO 1999-US21443	A2	19991008
US 2000-183562P	P	20000218
US 2000-668916	B1	20000511

AB The present invention provides a partially coated fabric comprising .gtoreq.1 coated fiber **strand** comprising many fibers having a coating compn. on at least a portion of a surface of .gtoreq.1 of the fibers, the coating compn. comprising (a) many discrete particles formed from materials selected from org. materials, inorg. polymeric materials, composite materials and mixts., the particles having an av. particle size, 0.1- 5.0 .mu.m; (b) .gtoreq.1 lubricious material different from the many discrete particles; and (c) .gtoreq.1 film forming material. The coating is not removed prior to impregnating the fabric with polymeric resin and thus the fabric is free from thermal treatment and thermal degrdn.

ST **impregnated glass fiber** textile laminate  
circuit board; **coating material impregnated**  
**glass fiber** circuit board; particle size coating  
material **impregnated glass fiber**

IT **Glass fibers**, uses  
RL: PEP (Physical, engineering or chemical process); PRP (Properties); TEM (Technical or engineered material use); PROC (Process); USES (Uses)  
(Adflo C; **impregnated glass fiber**  
**strands** having resin compatible coating compns. and  
products including the same)

IT Rosin  
RL: TEM (Technical or engineered material use); USES (Uses)  
(Dynakoll Si 100; **impregnated glass fiber**  
**strands** having resin compatible coating compns. and  
products including the same)

IT Linseed oil  
Soybean oil  
RL: MOA (Modifier or additive use); USES (Uses)  
(epoxidized; **impregnated glass fiber**  
**strands** having resin compatible coating compns. and  
products including the same)

IT Vinyl compounds, uses  
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)  
(ester group-contg., polymers; **impregnated glass**  
**fiber strands** having resin compatible coating  
compns. and products including the same)

IT Bending strength  
**Coating** materials  
Coupling agents  
**Fiber-reinforced** composites  
Laminated materials  
Lubricants  
Lubricating greases  
Mats

Particle size  
Printed circuit boards  
Sizing  
Tensile strength  
Textiles  
Thermal conductivity  
Yarns  
    (**impregnated glass fiber strands**  
    having resin compatible **coating compns.** and products  
    including the same)  
IT Polysiloxanes, uses  
RL: MOA (Modifier or additive use); USES (Uses)  
    (**impregnated glass fiber strands**  
    having resin compatible **coating compns.** and products  
    including the same)  
IT Acrylic polymers, uses  
Aminoplasts  
Epoxy resins, uses  
Polyamides, uses  
    **Polycarbonates**, uses  
Polyesters, uses  
Polyolefins  
Polyoxyalkylenes, uses  
Polyphosphazenes  
Polysilanes  
RL: POF (Polymer in formulation); TEM (Technical or engineered material  
use); USES (Uses)  
    (**impregnated glass fiber strands**  
    having resin compatible **coating compns.** and products  
    including the same)  
IT Glycols, uses  
Phenols, uses  
Waxes  
RL: TEM (Technical or engineered material use); USES (Uses)  
    (**impregnated glass fiber strands**  
    having resin compatible **coating compns.** and products  
    including the same)  
IT Textiles  
    (knitted; **impregnated glass fiber**  
    **strands** having resin compatible **coating compns.** and  
    products including the same)  
IT Vinyl compounds, uses  
RL: POF (Polymer in formulation); TEM (Technical or engineered material  
use); USES (Uses)  
    (polymer; **impregnated glass fiber**  
    **strands** having resin compatible **coating compns.** and  
    products including the same)  
IT Fatty acids, uses  
RL: POF (Polymer in formulation); TEM (Technical or engineered material  
use); USES (Uses)  
    (tall-oil, diesters with polyethylene glycol, Mapeg 600DOT;  
    **impregnated glass fiber strands**  
    having resin compatible **coating compns.** and products  
    including the same)  
IT Polyurethanes, uses  
RL: POF (Polymer in formulation); TEM (Technical or engineered material  
use); USES (Uses)  
    (thermoplastic; **impregnated glass fiber**  
    **strands** having resin compatible **coating compns.** and  
    products including the same)

IT Plastics, uses  
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)  
(thermoplastics; **impregnated glass fiber strands** having resin compatible coating compns. and products including the same)

IT Plastics, uses  
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)  
(thermosetting; **impregnated glass fiber strands** having resin compatible coating compns. and products including the same)

IT Fats and Glyceridic oils, uses  
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)  
(vegetable, ethoxylated, Alkamuls EL 719; **impregnated glass fiber strands** having resin compatible coating compns. and products including the same)

IT 26590-20-5, Methyl tetrahydrophthalic anhydride  
RL: TEM (Technical or engineered material use); USES (Uses)  
(AC 220J; **impregnated glass fiber strands** having resin compatible coating compns. and products including the same)

IT 25068-38-6, Epon 880  
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)  
(Epon 826; **impregnated glass fiber strands** having resin compatible coating compns. and products including the same)

IT 9004-81-3, Glycols, polyethylene, monolaurate  
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)  
(Kessco PEG 600; **impregnated glass fiber strands** having resin compatible coating compns. and products including the same)

IT 9016-45-9, Iconol NP 6  
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)  
(Macol NP 6; **impregnated glass fiber strands** having resin compatible coating compns. and products including the same)

IT 9036-19-5, Igepal CA 630  
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)  
(Macol OP 10; **impregnated glass fiber strands** having resin compatible coating compns. and products including the same)

IT 10043-11-5, Boron nitride, uses  
RL: TEM (Technical or engineered material use); USES (Uses)  
(Polartherm PT 160, Releasecoat-Conc 25; **impregnated glass fiber strands** having resin compatible coating compns. and products including the same)

IT 106392-12-5, Pluronic F 108  
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)  
(Synperonic F 108; **impregnated glass fiber strands** having resin compatible coating compns. and products including the same)

IT 64-19-7, Acetic acid, uses 202537-92-6, Ropaque HP 1055 226558-99-2,  
Mazu DF 136 285980-72-5, Ropaque OP 96

RL: MOA (Modifier or additive use); USES (Uses)  
(**impregnated glass fiber strands**  
having resin compatible **coating** compns. and products  
including the same)

IT 9003-39-8, Pvp K-30 9005-65-6, Tmaz 81 12624-35-0, Versamid 140  
24937-05-1, Desmophen 2000 25085-99-8, Epi-Rez 3522 25322-68-3, Polyox  
WSR 301 33294-14-3 67185-58-4, Emery 6717 87209-95-8, Protolube HD  
91727-33-2, Euredur 140 107852-39-1, Emery 6760 217478-86-9, RD 847A  
241811-13-2, Epi-Rez 3522W66  
RL: POF (Polymer in formulation); TEM (Technical or engineered material  
use); USES (Uses)  
(**impregnated glass fiber strands**  
having resin compatible **coating** compns. and products  
including the same)

IT 919-30-2, A 1100 2530-83-8, A 187 2530-85-0, A 174  
RL: PRP (Properties); TEM (Technical or engineered material use); USES  
(Uses)  
(**impregnated glass fiber strands**  
having resin compatible **coating** compns. and products  
including the same)

IT 461-58-5, Dicyandiamide 540-10-3, Stepantex 653 693-98-1,  
2-Methylimidazole 1320-67-8, Dowanol PM **14807-96-6**, Vantalc F  
2003, uses 23779-32-0, .gamma.-Ureidopropyltriethoxysilane 59125-51-8,  
Araldite Dy 062  
RL: TEM (Technical or engineered material use); USES (Uses)  
(**impregnated glass fiber strands**  
having resin compatible **coating** compns. and products  
including the same)

RE.CNT 17 THERE ARE 17 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

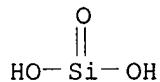
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(13) Ppg Ind Ohio Inc; WO 9944956 A 1999 HCPLUS  
(14) Ppg Ind Ohio Inc; WO 9944958 A 1999 HCPLUS  
(15) Ppg Ind Ohio Inc; WO 9944959 A 1999 HCPLUS  
(16) Ppg Industries Inc; WO 9639364 A 1996 HCPLUS  
(17) Taizou, S; US 5733823 A 1998 HCPLUS

IT 10043-11-5, Boron nitride, uses  
RL: TEM (Technical or engineered material use); USES (Uses)  
(Polartherm PT 160, Releasecoat-Conc 25; **impregnated**  
**glass fiber strands** having resin compatible  
**coating** compns. and products including the same)

RN 10043-11-5 HCPLUS  
CN Boron nitride (BN) (8CI, 9CI) (CA INDEX NAME)

B≡N

IT 14807-96-6, Vantalc F 2003, uses  
 RL: TEM (Technical or engineered material use); USES (Uses)  
 (impregnated glass fiber strands  
 having resin compatible coating compns. and products  
 including the same)  
 RN 14807-96-6 HCPLUS  
 CN Talc ( $Mg_3H_2(SiO_3)_4$ ) (9CI) (CA INDEX NAME)



3/4 Mg

L54 ANSWER 8 OF 52 HCPLUS COPYRIGHT 2003 ACS DUPLICATE 2  
 AN 2001:693421 HCPLUS  
 DN 135:258624  
 TI Impregnated glass fiber strands  
 and products including the same  
 IN Lawton, Ernest L.; Velpari, Vedagiri; Rice, William B.; Robertson, Walter  
 J.; Novich, Bruce E.; Wu, Xiang; Lammon-Hilinski, Kami  
 PA PPG Industries Ohio, Inc., USA  
 SO PCT Int. Appl., 162 pp.  
 CODEN: PIXXD2  
 DT Patent  
 LA English  
 IC ICM C08J005-08  
 ICS H05K001-03; C03C025-10  
 CC 42-10 (Coatings, Inks, and Related Products)  
 Section cross-reference(s): 38, 40, 76  
 FAN.CNT 20

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2001068754	A1	20010920	WO 2001-US8738	20010316
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
	US 6419981	B1	20020716	, US 2000-620524	20000720
PRAI	US 2000-527034	A	20000316	<i>abnd. min</i>	
	US 2000-548379	A	20000412	<i>abnd. min</i>	
	US 2000-568916	A	20000511	<i>abnd. min</i>	
	US 2000-620523	A	20000720	<i>minc 17D1</i>	
	US 2000-620524	A	20000720	<i>Cameron - 6419981</i>	
	US 2000-620525	A	20000720	<i>Minb ny</i>	
	US 2000-620526	A	20000720	<i>PRG EXAM</i>	
	US 2000-705575	A	20001103		
	US 1998-34056	B2	19980303		
	US 1998-34077	B2	19980303		

*applicant*

US 1998-34078	B2	19980303
US 1998-34525	B2	19980303
US 1998-34663	B2	19980303
US 1998-130270	B2	19980806
US 1998-170565	A2	19981013
US 1998-170566	A2	19981013
US 1998-170578	A2	19981013
US 1998-170579	A2	19981013
US 1998-170780	A2	19981013
US 1998-170781	A2	19981013
US 1999-133075P	P	19990507
US 1999-133076P	P	19990507
US 1999-136110P	P	19990526
US 1999-146337P	P	19990730
US 1999-146605P	P	19990730
US 1999-146862P	P	19990803
WO 1999-US21442	A2	19991008
WO 1999-US21443	A2	19991008
US 2000-183562P	P	20000218
US 2000-668916	B1	20000511

AB The present invention provides a partially coated fiber strand comprising many glass fibers having a coating compn., the coating comprising >20% of many particles selected from inorg. particles, org. hollow particles, composite particles, and mixts. wherein the particles have a Mohs' hardness value which does not exceed the Mohs' hardness value of the glass fibers. Thus, a glass fiber coated with the above coating compn. was dried, twisted to form a yarn and wound onto bobbins exhibited minimal sizing shedding.

ST impregnated glass fiber textile laminate circuit board; coating material impregnated glass fiber circuit board; particle size coating material impregnated glass fiber; glass fiber impregnated coating material yarn

IT Glass fibers, uses  
 RL: PEP (Physical, engineering or chemical process); PRP (Properties); TEM (Technical or engineered material use); PROC (Process); USES (Uses)  
 (Adflo C; impregnated glass fiber strands having resin compatible coating compns. and products including the same)

IT Rosin  
 RL: TEM (Technical or engineered material use); USES (Uses)  
 (Dynakoll SI 100; impregnated glass fiber strands having resin compatible coating compns. and products including the same)

IT Linseed oil  
 Soybean oil  
 RL: MOA (Modifier or additive use); USES (Uses)  
 (epoxidized; impregnated glass fiber strands having resin compatible coating compns. and products including the same)

IT Bending strength  
 Coating materials  
 Composites  
 Coupling agents  
 Fiber-reinforced composites  
 Hardness (mechanical)  
 Laminated materials

Lubricants  
Particle size  
Printed circuit boards  
Sizing  
Tensile strength  
Thermal conductivity  
    (**impregnated glass fiber strands**  
    having resin compatible **coating compns.** and products  
    including the same)  
IT Polysiloxanes, uses  
RL: MOA (Modifier or additive use); USES (Uses)  
    (**impregnated glass fiber strands**  
    having resin compatible **coating compns.** and products  
    including the same)  
IT Acrylic polymers, uses  
Epoxy resins, uses  
Polyamides, uses  
Polyesters, uses  
Polyolefins  
Polyoxyalkylenes, uses  
RL: POF (Polymer in formulation); TEM (Technical or engineered material  
use); USES (Uses)  
    (**impregnated glass fiber strands**  
    having resin compatible **coating compns.** and products  
    including the same)  
IT Carbonates, uses  
Clays, uses  
Glycols, uses  
Metals, uses  
    Mica-group minerals, uses  
RL: TEM (Technical or engineered material use); USES (Uses)  
    (**impregnated glass fiber strands**  
    having resin compatible **coating compns.** and products  
    including the same)  
IT Fatty acids, uses  
RL: POF (Polymer in formulation); TEM (Technical or engineered material  
use); USES (Uses)  
    (tall-oil, diesters with polyethylene glycol, Mapeg 600DOT;  
    **impregnated glass fiber strands**  
    having resin compatible **coating compns.** and products  
    including the same)  
IT Polyurethanes, uses  
RL: POF (Polymer in formulation); TEM (Technical or engineered material  
use); USES (Uses)  
    (thermoplastic; **impregnated glass fiber**  
    **strands** having resin compatible **coating compns.** and  
    products including the same)  
IT Plastics, uses  
RL: POF (Polymer in formulation); TEM (Technical or engineered material  
use); USES (Uses)  
    (thermoplastics; **impregnated glass fiber**  
    **strands** having resin compatible **coating compns.** and  
    products including the same)  
IT Plastics, uses  
RL: POF (Polymer in formulation); TEM (Technical or engineered material  
use); USES (Uses)  
    (thermosetting; **impregnated glass fiber**  
    **strands** having resin compatible **coating compns.** and  
    products including the same)  
IT Fats and Glyceridic oils, uses

RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)  
(vegetable, ethoxylated, Alkamuls EL 719; **impregnated glass fiber strands** having resin compatible coating compns. and products including the same)

IT Textiles  
(woven, unidirectional, biaxial, triaxial, multilayered; **impregnated glass fiber strands** having resin compatible **coating** compns. and products including the same)

IT 25068-38-6, Epi-Rez 3522  
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)  
(Epon 826, Epi-Rez 3522; **impregnated glass fiber strands** having resin compatible **coating** compns. and products including the same)

IT 9036-19-5, Macol OP 10  
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)  
(Igepal CA 630; **impregnated glass fiber strands** having resin compatible **coating** compns. and products including the same)

IT 9004-81-3, Kessco PEG 600ML  
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)  
(Kessco PEG 600ML; **impregnated glass fiber strands** having resin compatible **coating** compns. and products including the same)

IT 9016-45-9, Macol NP 6  
RL: MOA (Modifier or additive use); USES (Uses)  
(Macol NP 6; **impregnated glass fiber strands** having resin compatible **coating** compns. and products including the same)

IT 10043-11-5, PT 160, uses  
RL: TEM (Technical or engineered material use); USES (Uses)  
(Polartherm PT 160, Releasecoat Conc 25; **impregnated glass fiber strands** having resin compatible **coating** compns. and products including the same)

IT 540-10-3, Stepan 653  
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)  
(Stepan 653; **impregnated glass fiber strands** having resin compatible **coating** compns. and products including the same)

IT 106392-12-5, Pluronic F 108  
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)  
(Synperonic F 108; **impregnated glass fiber strands** having resin compatible **coating** compns. and products including the same)

IT 64-19-7, Acetic acid, uses 1320-67-8, Dowanol PM 202537-92-6, Ropaque HP 1055 226558-99-2, Mazu DF 136 285980-72-5, Ropaque OP 96  
RL: MOA (Modifier or additive use); USES (Uses)  
(**impregnated glass fiber strands** having resin compatible **coating** compns. and products including the same)

IT 9003-39-8, Pvp K-30 9005-65-6, Tmaz 81 12624-35-0, versamid 140 24937-05-1, Desmophen 2000 25322-68-3, polyox WSR 301 33294-14-3, Epon 1120A80 67185-58-4, emery 6717 87209-95-8, Protolube HD 91727-33-2, Euredur 140 107852-39-1, emery 6760 217478-86-9, RD 847A

RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)  
(**impregnated glass fiber strands**  
having resin compatible **coating** compns. and products  
including the same)

IT 919-30-2, A 1100 2530-83-8, A 187 2530-85-0, A 174  
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)  
(**impregnated glass fiber strands**  
having resin compatible **coating** compns. and products  
including the same)

IT 461-58-5, Dicyandiamide 471-34-1, Calcium carbonate, uses 693-98-1, 2-Methylimidazole 1314-13-2, Zinc oxide, uses 1314-98-3, Zinc sulfide, uses 1317-33-5, Molybdenum disulfide, uses 1318-74-7, Kaolinite, uses 7429-90-5, Aluminum, uses 7439-89-6, Iron, uses 7440-02-0, Nickel, uses 7440-05-3, Palladium, uses 7440-06-4, Platinum, uses 7440-22-4, Silver, uses 7440-50-8, Copper, uses 7440-57-5, Gold, uses 7631-86-9, Silica, uses 7782-42-5, Graphite, uses 7789-75-5, Calcium fluoride, uses 13397-24-5, Gypsum, uses 14807-96-6, Vantalc F 2003, uses 23779-32-0, .gamma.-Ureidopropyltriethoxysilane 26590-20-5, Methyl tetrahydrophthalic anhydride 59125-51-8, Araldite Dy 062  
RL: TEM (Technical or engineered material use); USES (Uses)  
(**impregnated glass fiber strands**  
having resin compatible **coating** compns. and products  
including the same)

RE.CNT 17 THERE ARE 17 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

(1) Anon; PATENT ABSTRACTS OF JAPAN 1990, V014(423), PC-0757  
(2) Hitachi Chem Co Ltd; JP 08309928 A 1996 HCPLUS  
(3) Lachasse, G; US 5217778 A 1993  
(4) Lawton, E; WO 0021899 A 2000 HCPLUS  
(5) Lawton, E; WO 0021900 A 2000 HCPLUS  
(6) Matsushita Electric Works Ltd; JP 09118759 A 1997 HCPLUS  
(7) Nitto Boseki Co Ltd; JP 02160944 A 1990  
(8) Novich, B; CIRCUITREE 1999, V12(3), P44  
(9) Novich, B; Hybon RCY yarns:a laminate reinforcement developed for printed circuit boards  
(10) Novich, B; PRINT CIRCUIT FABR; PRINTED CIRCUIT FABRICATION 1999 1999, V22(4), P52  
(11) Philipps, T; US 3312569 A 1967 HCPLUS  
(12) Ppg Ind Ohio Inc; WO 9944955 A 1999 HCPLUS  
(13) Ppg Ind Ohio Inc; WO 9944956 A 1999 HCPLUS  
(14) Ppg Ind Ohio Inc; WO 9944958 A 1999 HCPLUS  
(15) Ppg Ind Ohio Inc; WO 9944959 A 1999 HCPLUS  
(16) Ppg Industries Inc; WO 9639364 A 1996 HCPLUS  
(17) Taizou, S; US 5733823 A 1998 HCPLUS

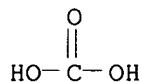
IT 10043-11-5, PT 160, uses  
RL: TEM (Technical or engineered material use); USES (Uses)  
(**Polartherm PT 160, Releasecoat Conc 25; impregnated glass fiber strands** having resin compatible **coating** compns. and products including the same)

RN 10043-11-5 HCPLUS  
CN Boron nitride (BN) (8CI, 9CI) (CA INDEX NAME)

B≡N

IT 471-34-1, Calcium carbonate, uses  
 1314-13-2, Zinc oxide, uses 1314-98-3  
 , Zinc sulfide, uses 1317-33-5,  
 Molybdenum disulfide, uses 1318-74-7,  
 Kaolinite, uses 7429-90-5, Aluminum, uses  
 7439-89-6, Iron, uses 7440-02-0,  
 Nickel, uses 7440-05-3, Palladium, uses  
 7440-06-4, Platinum, uses 7440-22-4,  
 Silver, uses 7440-50-8, Copper, uses  
 7440-57-5, Gold, uses 7789-75-5,  
 Calcium fluoride, uses 13397-24-5,  
 Gypsum, uses 14807-96-6, Vantalc F 2003, uses  
 RL: TEM (Technical or engineered material use); USES (Uses)  
 (impregnated glass fiber strands  
 having resin compatible coating compns. and products  
 including the same)

RN 471-34-1 HCPLUS  
 CN Carbonic acid calcium salt (1:1) (8CI, 9CI) (CA INDEX NAME)



Ca

RN 1314-13-2 HCPLUS  
 CN Zinc oxide (ZnO) (9CI) (CA INDEX NAME)

O≡Zn

RN 1314-98-3 HCPLUS  
 CN Zinc sulfide (ZnS) (9CI) (CA INDEX NAME)

S≡Zn

RN 1317-33-5 HCPLUS  
 CN Molybdenum sulfide (MoS<sub>2</sub>) (8CI, 9CI) (CA INDEX NAME)

S≡Mo≡S

RN 1318-74-7 HCPLUS  
 CN Kaolinite (Al<sub>2</sub>(OH)<sub>4</sub>(Si<sub>2</sub>O<sub>5</sub>)) (9CI) (CA INDEX NAME)

Component	Ratio	Component
		Registry Number
O <sub>5</sub> Si <sub>2</sub>	1	20328-07-8

HO		4		14280-30-9
Al		2		7429-90-5

RN 7429-90-5 HCAPLUS  
CN Aluminum (8CI, 9CI) (CA INDEX NAME)

Al

RN 7439-89-6 HCAPLUS  
CN Iron (7CI, 8CI, 9CI) (CA INDEX NAME)

Fe

RN 7440-02-0 HCAPLUS  
CN Nickel (8CI, 9CI) (CA INDEX NAME)

Ni

RN 7440-05-3 HCAPLUS  
CN Palladium (8CI, 9CI) (CA INDEX NAME)

Pd

RN 7440-06-4 HCAPLUS  
CN Platinum (8CI, 9CI) (CA INDEX NAME)

Pt

RN 7440-22-4 HCAPLUS  
CN Silver (8CI, 9CI) (CA INDEX NAME)

Ag

RN 7440-50-8 HCAPLUS  
CN Copper (7CI, 8CI, 9CI) (CA INDEX NAME)

Cu

RN 7440-57-5 HCAPLUS  
CN Gold (8CI, 9CI) (CA INDEX NAME)

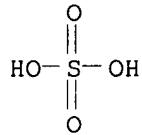
Au

RN 7789-75-5 HCAPLUS

CN Calcium fluoride (CaF<sub>2</sub>) (9CI) (CA INDEX NAME)

F—Ca—F

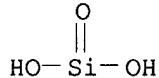
RN 13397-24-5 HCPLUS

CN Gypsum (Ca(SO<sub>4</sub>).2H<sub>2</sub>O) (9CI) (CA INDEX NAME)

Ca

2 H<sub>2</sub>O

RN 14807-96-6 HCPLUS

CN Talc (Mg<sub>3</sub>H<sub>2</sub>(SiO<sub>3</sub>)<sub>4</sub>) (9CI) (CA INDEX NAME)

3/4 Mg

L54 ANSWER 9 OF 52 HCPLUS COPYRIGHT 2003 ACS

DUPLICATE 3.

AN 2001:693420 HCPLUS

DN 135:258623

TI Impregnated glass fiber strands

and products including the same

IN Lawton, Ernest L.; Velpari, Vedagiri; Rice, William B.; Robertson, Walter J.; Novich, Bruce E.; Wu, Xiang; Lammon-Hilinski, Kami

PA PPG Industries Ohio, Inc., USA

SO PCT Int. Appl., 162 pp.

CODEN: PIXXD2

DT Patent

LA English

IC ICM C08J005-08

ICS H05K001-03; C03C025-10

CC 42-10 (Coatings, Inks, and Related Products)

Section cross-reference(s): 38, 40, 76

FAN.CNT 20

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2001068753	A1	20010920	WO 2001-US8689	20010316

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN,  
 CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR,  
 HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT,  
 LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU,  
 SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU,  
 ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM

RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY,  
 DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF,  
 BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG

US 6419981	B1	20020716	US 2000-620524	20000720
PRAI US 2000-527034	A	20000316		
US 2000-548379	A	20000412		
US 2000-568916	A	20000511		
US 2000-620523	A	20000720		
US 2000-620524	A	20000720		
US 2000-620525	A	20000720		
US 2000-620526	A	20000720		
US 2000-706035	A	20001103 <i>17X1 minw</i>		
US 1998-34056	B2	19980303	<i>PC1 US 99/04657</i>	
US 1998-34077	B2	19980303		
US 1998-34078	B2	19980303		
US 1998-34525	B2	19980303		
US 1998-34663	B2	19980303		
US 1998-130270	B2	19980806		
US 1998-170565	A2	19981013		
US 1998-170566	A2	19981013		
US 1998-170578	A2	19981013		
US 1998-170579	A2	19981013		
US 1998-170780	A2	19981013		
US 1998-170781	A2	19981013		
US 1999-133075P	P	19990507		
US 1999-133076P	P	19990507		
US 1999-136110P	P	19990526		
US 1999-146337P	P	19990730		
US 1999-146605P	P	19990730		
US 1999-146862P	P	19990803		
WO 1999-US21442	A2	19991008		
WO 1999-US21443	A2	19991008		
US 2000-183562P	P	20000218		
US 2000-668916	B1	20000511		

AB The present invention provides a partially coated fabric comprising .gtoreq.1 fiber strand comprising many glass fibers, the coating comprising >20% of many particles selected from inorg. particles, org. hollow particles, composite particles, and mixts. wherein the particles have a Mohs' hardness value which does not exceed the Mohs' hardness value of the glass fibers. Thus, a glass fiber coated with the above coating compn. was dried, twisted to form a yarn and wound onto bobbins exhibited minimal sizing shedding.

ST impregnated glass fiber textile laminate circuit board; coating material impregnated glass fiber circuit board; particle size coating material impregnated glass fiber; glass fiber impregnated coating material yarn

IT Glass fibers, uses  
 RL: PEP (Physical, engineering or chemical process); PRP (Properties); TEM (Technical or engineered material use); PROC (Process); USES (Uses)  
 (Adflo C; impregnated glass fiber)

strands having resin compatible coating compns. and products including the same)

IT Rosin  
RL: TEM (Technical or engineered material use); USES (Uses)  
(Dynakoll Si 100; **impregnated glass fiber**  
strands having resin compatible coating compns. and products including the same)

IT Linseed oil  
Soybean oil  
RL: MOA (Modifier or additive use); USES (Uses)  
(epoxidized; **impregnated glass fiber**  
strands having resin compatible coating compns. and products including the same)

IT Coating materials  
Coupling agents  
**Fiber-reinforced composites**  
Laminated materials  
Lubricants  
Mats  
Particle size  
Printed circuit boards  
Sizing  
Tensile strength  
Textiles  
Thermal conductors  
(**impregnated glass fiber strands**  
having resin compatible coating compns. and products including the same)

IT Polysiloxanes, uses  
RL: MOA (Modifier or additive use); USES (Uses)  
(**impregnated glass fiber strands**  
having resin compatible coating compns. and products including the same)

IT Acrylic polymers, uses  
Epoxy resins, uses  
Polyamides, uses  
Polyesters, uses  
Polyolefins  
Polyoxyalkylenes, uses  
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)  
(**impregnated glass fiber strands**  
having resin compatible coating compns. and products including the same)

IT Carbonates, uses  
Clays, uses  
Glycols, uses  
Metals, uses  
**Mica-group minerals, uses**  
RL: TEM (Technical or engineered material use); USES (Uses)  
(**impregnated glass fiber strands**  
having resin compatible coating compns. and products including the same)

IT Textiles  
(knitted; **impregnated glass fiber**  
strands having resin compatible coating compns. and products including the same)

IT Fatty acids, uses  
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)

(tall-oil, diesters with polyethylene glycol, Mapeg 600DOT; **impregnated glass fiber strands** having resin compatible coating compns. and products including the same)

IT Polyurethanes, uses  
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)  
(thermoplastic; **impregnated glass fiber strands** having resin compatible coating compns. and products including the same)

IT Plastics, uses  
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)  
(thermoplastics; **impregnated glass fiber strands** having resin compatible coating compns. and products including the same)

IT Plastics, uses  
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)  
(thermosetting; **impregnated glass fiber strands** having resin compatible coating compns. and products including the same)

IT Fats and Glyceridic oils, uses  
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)  
(vegetable, ethoxylated, Alkamuls EL 719; **impregnated glass fiber strands** having resin compatible coating compns. and products including the same)

IT Textiles  
(woven, unidirectional, biaxial, triaxial, multilayered; **impregnated glass fiber strands** having resin compatible coating compns. and products including the same)

IT 26590-20-5, Methyl tetrahydrophthalic anhydride  
RL: TEM (Technical or engineered material use); USES (Uses)  
(AC 220J; **impregnated glass fiber strands** having resin compatible coating compns. and products including the same)

IT 25068-38-6, Epon 880  
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)  
(Epon 826; **impregnated glass fiber strands** having resin compatible coating compns. and products including the same)

IT 9004-81-3, Glycols, polyethylene, monolaurate  
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)  
(Kessco PEG 600; **impregnated glass fiber strands** having resin compatible coating compns. and products including the same)

IT 9016-45-9, Iconol NP 6  
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)  
(Macol NP 6; **impregnated glass fiber strands** having resin compatible coating compns. and products including the same)

IT 9036-19-5, Igepal CA 630  
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)  
(Macol OP 10; **impregnated glass fiber**

strands having resin compatible coating compns. and products including the same)

IT 10043-11-5, Boron nitride, uses  
 RL: TEM (Technical or engineered material use); USES (Uses)  
 (PolarTherm PT 160, Releasecoat-Conc 25; **impregnated glass fiber strands** having resin compatible coating compns. and products including the same)

IT 106392-12-5, Pluronic F 108  
 RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)  
 (Synperonic F 108; **impregnated glass fiber strands** having resin compatible coating compns. and products including the same)

IT 64-19-7, Acetic acid, uses 1320-67-8, Dowanol PM 202537-92-6, Ropaque HP 1055 226558-99-2, Mazu DF 136 285980-72-5, Ropaque OP 96  
 RL: MOA (Modifier or additive use); USES (Uses)  
 (**impregnated glass fiber strands** having resin compatible coating compns. and products including the same)

IT 540-10-3, Stepantex 653 9003-39-8, Pvp K-30 9005-65-6, Tmaz 81  
 12624-35-0, Versamid 140 24937-05-1, Desmophen 2000 25085-99-8,  
 Epi-Rez 3522 25322-68-3, Polyox WSR 301 33294-14-3 67185-58-4, Emery 6717 87209-95-8, Protolube HD 91727-33-2, Euredur 140 107852-39-1,  
 Emery 6760 217478-86-9, RD 847A 241811-13-2, Epi-Rez 3522W66  
 RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)  
 (**impregnated glass fiber strands** having resin compatible coating compns. and products including the same)

IT 919-30-2, A 1100 2530-83-8, A 187 2530-85-0, A 174  
 RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)  
 (**impregnated glass fiber strands** having resin compatible coating compns. and products including the same)

IT 461-58-5, Dicyandiamide **471-34-1**, Calcium carbonate, uses 693-98-1, 2-Methylimidazole **1314-13-2**, Zinc oxide, uses 1314-98-3, Zinc sulfide, uses 1317-33-5, Molybdenum disulfide, uses 1318-74-7, Kaolinite, uses 7429-90-5, Aluminum, uses 7439-89-6, Iron, uses 7440-02-0, Nickel, uses 7440-05-3, Palladium, uses 7440-06-4, Platinum, uses 7440-22-4, Silver, uses 7440-28-0, Thallium, uses 7440-31-5, Tin, uses 7440-50-8, Copper, uses 7440-57-5, Gold, uses 7440-74-6, Indium, uses 7631-86-9, Silica, uses 7782-42-5, Graphite, uses 7789-75-5, Calcium fluoride, uses 13397-24-5, Gypsum, uses 14807-96-6, Vantalc F 2003, uses 23779-32-0, .gamma.-Ureidopropyltriethoxysilane 59125-51-8, Araldite Dy 062  
 RL: TEM (Technical or engineered material use); USES (Uses)  
 (**impregnated glass fiber strands** having resin compatible coating compns. and products including the same)

RE.CNT 17 THERE ARE 17 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

- (1) Anon; PATENT ABSTRACTS OF JAPAN 1990, V014(423), PC-0757
- (2) Hitachi Chem Co Ltd; JP 08309928 A 1996 HCPLUS
- (3) Lachasse, G; US 5217778 A 1993

- (4) Lawton, E; WO 0021899 A 2000 HCAPLUS
- (5) Lawton, E; WO 0021900 A 2000 HCAPLUS
- (6) Matsushita Electric Works Ltd; JP 09118759 A 1997 HCAPLUS
- (7) Nitto Boseki Co Ltd; JP 02160944 A 1990
- (8) Novich, B; CIRCUITREE 1999, V12(3), P44
- (9) Novich, B; Hybon RCY yarns:a laminate reinforcement developed for printed circuit boards
- (10) Novich, B; PRINT CIRCUIT FABR; PRINTED CIRCUIT FABRICATION 1999 1999, V22(4), P52
- (11) Philippss, T; US 3312569 A 1967 HCAPLUS
- (12) Ppg Ind Ohio Inc; WO 9944955 A 1999 HCAPLUS
- (13) Ppg Ind Ohio Inc; WO 9944956 A 1999 HCAPLUS
- (14) Ppg Ind Ohio Inc; WO 9944958 A 1999 HCAPLUS
- (15) Ppg Ind Ohio Inc; WO 9944959 A 1999 HCAPLUS
- (16) Ppg Industries Inc; WO 9639364 A 1996 HCAPLUS
- (17) Taizou, S; US 5733823 A 1998 HCAPLUS

IT 10043-11-5, Boron nitride, uses

RL: TEM (Technical or engineered material use); USES (Uses)  
(PolarTherm PT 160, Releasecoat-Conc 25; **impregnated**  
**glass fiber strands** having resin compatible  
coating compns. and products including the same)

RN 10043-11-5 HCAPLUS

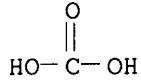
CN Boron nitride (BN) (8CI, 9CI) (CA INDEX NAME)

B≡N

IT 471-34-1, Calcium carbonate, uses  
1314-13-2, Zinc oxide, uses 1314-98-3  
, Zinc sulfide, uses 1317-33-5,  
Molybdenum disulfide, uses 1318-74-7,  
Kaolinite, uses 7429-90-5, Aluminum, uses  
7439-89-6, Iron, uses 7440-02-0,  
Nickel, uses 7440-05-3, Palladium, uses  
7440-06-4, Platinum, uses 7440-22-4,  
Silver, uses 7440-50-8, Copper, uses  
7440-57-5, Gold, uses 7789-75-5,  
Calcium fluoride, uses 13397-24-5,  
Gypsum, uses 14807-96-6, Vantalc F 2003, uses  
RL: TEM (Technical or engineered material use); USES (Uses)  
(**impregnated glass fiber strands**  
having resin compatible **coating** compns. and products  
including the same)

RN 471-34-1 HCAPLUS

CN Carbonic acid calcium salt (1:1) (8CI, 9CI) (CA INDEX NAME)



Ca

RN 1314-13-2 HCAPLUS  
CN Zinc oxide (ZnO) (9CI) (CA INDEX NAME)

O==Zn

RN 1314-98-3 HCAPLUS  
CN Zinc sulfide (ZnS) (9CI) (CA INDEX NAME)

S==Zn

RN 1317-33-5 HCAPLUS  
CN Molybdenum sulfide (MoS<sub>2</sub>) (8CI, 9CI) (CA INDEX NAME)

S==Mo==S

RN 1318-74-7 HCAPLUS  
CN Kaolinite (Al<sub>2</sub>(OH)<sub>4</sub>(Si<sub>2</sub>O<sub>5</sub>)) (9CI) (CA INDEX NAME)

Component	Ratio	Component
		Registry Number
O <sub>5</sub> Si <sub>2</sub>	1	20328-07-8
HO	4	14280-30-9
Al	2	7429-90-5

RN 7429-90-5 HCAPLUS  
CN Aluminum (8CI, 9CI) (CA INDEX NAME)

Al

RN 7439-89-6 HCAPLUS  
CN Iron (7CI, 8CI, 9CI) (CA INDEX NAME)

Fe

RN 7440-02-0 HCAPLUS  
CN Nickel (8CI, 9CI) (CA INDEX NAME)

Ni

RN 7440-05-3 HCAPLUS  
CN Palladium (8CI, 9CI) (CA INDEX NAME)

Pd

RN 7440-06-4 HCAPLUS  
CN Platinum (8CI, 9CI) (CA INDEX NAME)

Pt

RN 7440-22-4 HCAPLUS  
CN Silver (8CI, 9CI) (CA INDEX NAME)

Ag

RN 7440-50-8 HCAPLUS  
CN Copper (7CI, 8CI, 9CI) (CA INDEX NAME)

Cu

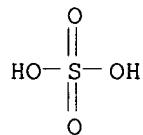
RN 7440-57-5 HCAPLUS  
CN Gold (8CI, 9CI) (CA INDEX NAME)

Au

RN 7789-75-5 HCAPLUS  
CN Calcium fluoride (CaF<sub>2</sub>) (9CI) (CA INDEX NAME)

F—Ca—F

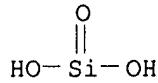
RN 13397-24-5 HCAPLUS  
CN Gypsum (Ca(SO<sub>4</sub>).2H<sub>2</sub>O) (9CI) (CA INDEX NAME)



Ca

2 H<sub>2</sub>O

RN 14807-96-6 HCAPLUS  
CN Talc (Mg<sub>3</sub>H<sub>2</sub>(SiO<sub>3</sub>)<sub>4</sub>) (9CI) (CA INDEX NAME)



3/4 Mg

L54 ANSWER 10 OF 52 HCAPLUS COPYRIGHT 2003 ACS DUPLICATE 4  
 AN 2001:693419 HCAPLUS  
 DN 135:243410  
 TI **Impregnated glass fiber strands**  
 and reinforced composite products  
 IN Lawton, Ernest L.; Velpari, Vedagiri; Rice, William B.; Robertson, Walter J.; Novich, Bruce E.; Wu, Xiang; Lammon-Hilinski, Kami  
 PA PPG Industries Ohio, Inc., USA  
 SO PCT Int. Appl., 161 pp.  
 CODEN: PIXXD2  
 DT Patent  
 LA English  
 IC ICM C08J005-08  
 ICS H05K001-03; C03C025-10  
 CC 38-3 (Plastics Fabrication and Uses)  
 Section cross-reference(s): 40, 42, 57  
 FAN.CNT 20

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2001068752	A1	20010920	WO 2001-US8684	20010316
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
	RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
	US 6419981	B1	20020716	US 2000-620524	20000720
	BR 2001009277	A	20021210	BR 2001-9277	20010316
	EP 1272550	A1	20030108	EP 2001-918815	20010316
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
PRAI	US 2000-527034	A	20000316		
	US 2000-548379	A	20000412		
	US 2000-568916	A	20000511		
	US 2000-620523	A	20000720		
	US 2000-620524	A	20000720		
	US 2000-620525	A	20000720		
	US 2000-620526	A	20000720		
	US 2000-705353	A	20001103 -Final mina 17c1		
	US 1998-34056	B2	19980303		
	US 1998-34077	B2	19980303		
	US 1998-34078	B2	19980303		
	US 1998-34525	B2	19980303		
	US 1998-34663	B2	19980303		
	US 1998-130270	B2	19980806		
	US 1998-170565	A2	19981013		

US 1998-170566	A2	19981013
US 1998-170578	A2	19981013
US 1998-170579	A2	19981013
US 1998-170780	A2	19981013
US 1998-170781	A2	19981013
US 1999-133075P	P	19990507
US 1999-133076P	P	19990507
US 1999-136110P	P	19990526
US 1999-146337P	P	19990730
US 1999-146605P	P	19990730
US 1999-146862P	P	19990803
WO 1999-US21442	A2	19991008
WO 1999-US21443	A2	19991008
US 2000-183562P	P	20000218
US 2000-668916	B1	20000511
WO 2001-US8684	W	20010316

AB A fabric comprises .gtoreq.1 fiber **strand** comprising many fibers and having a resin compatible coating compn. on at least a surface of the **strand**, where .gtoreq.1 fiber **strand** has an Air Jet Transport Drag Force value >100,000 g force/g mass of **strand** as detd. by a needle air jet nozzle unit having an internal air jet chamber having a diam. 2 mm and a nozzle exit tube having a length 20 cm at a **strand** feed rate 274 m/min and an air pressure 310 kPa.

ST coated glass fabric reinforced composite; circuit board reinforced composite; epoxy coated fabric reinforced composite; glass fiber reinforced composite circuit board; wear resistance coating **boron nitride** particle fiber; elec grade laminate reinforced composite

IT Coating materials  
(abrasion-resistant; **coated glass fiber strands** for reinforced composite products having wear resistance and useful in circuit boards)

IT Lubricants  
Printed circuit boards  
Sizes (agents)  
(**coated glass fiber strands** for reinforced composite products having wear resistance and useful in circuit boards)

IT Epoxy resins, uses  
Polyesters, uses  
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)  
(**coated glass fiber strands** for reinforced composite products having wear resistance and useful in circuit boards)

IT **Acrylic polymers**, uses  
Aminoplasts  
Borides  
Carbides  
**Carbonates**, uses  
**Glass fiber fabrics**  
**Glass fibers**, uses  
Hydroxides (inorganic)  
Metals, uses  
Nitrides  
Oxides (inorganic), uses  
Phenolic resins, uses  
Polyamides, uses  
**Polycarbonates**, uses  
Polygermanes  
Polyolefins

Polyphosphazenes  
Polysilanes  
Polysiloxanes, uses  
Polyurethanes, uses  
Silicates, uses  
Sulfates, uses  
Sulfides, uses  
RL: TEM (Technical or engineered material use); USES (Uses)  
**(coated glass fiber strands for**  
reinforced composite products having wear resistance and useful in  
circuit boards)

IT Textiles  
**(coated; coated glass fiber**  
**strands for reinforced composite products having wear**  
resistance and useful in circuit boards)

IT Reinforced plastics  
RL: PRP (Properties); TEM (Technical or engineered material use); USES  
(Uses)  
**(glass fiber-reinforced, circuit board laminates;**  
**coated glass fiber strands for**  
reinforced composite products having wear resistance and useful in  
circuit boards)

IT Polyurethanes, uses  
RL: PRP (Properties); TEM (Technical or engineered material use); USES  
(Uses)  
**(polyester-; coated glass fiber**  
**strands for reinforced composite products having wear**  
resistance and useful in circuit boards)

IT Vinyl compounds, uses  
RL: TEM (Technical or engineered material use); USES (Uses)  
**(polymers; coated glass fiber**  
**strands for reinforced composite products having wear**  
resistance and useful in circuit boards)

IT Plastics, uses  
RL: TEM (Technical or engineered material use); USES (Uses)  
**(thermoplastics; coated glass fiber**  
**strands for reinforced composite products having wear**  
resistance and useful in circuit boards)

IT Plastics, uses  
RL: TEM (Technical or engineered material use); USES (Uses)  
**(thermosetting; coated glass fiber**  
**strands for reinforced composite products having wear**  
resistance and useful in circuit boards)

IT 33294-14-3, Epon 1120A80  
RL: PRP (Properties); TEM (Technical or engineered material use); USES  
(Uses)  
**(Epon 1120A80, fiber-reinforced; coated**  
**glass fiber strands for reinforced**  
composite products having wear resistance and useful in circuit boards)

IT 10043-11-5, PT 160, uses  
RL: PRP (Properties); TEM (Technical or engineered material use); USES  
(Uses)  
**(PolarTherm PT 160; coated glass**  
**fiber strands for reinforced composite products**  
having wear resistance and useful in circuit boards)

IT 9003-39-8, Poly(vinylpyrrolidone) 24937-05-1, Desmophen 2000  
25068-38-6, Epon 826 202537-92-6, Ropaque HP-1055 217478-86-9, RD 847A  
241811-13-2, Epi-Rez 3522W66 285980-72-5, Ropaque OP-96  
RL: PRP (Properties); TEM (Technical or engineered material use); USES  
(Uses)

(coated glass fiber strands for  
reinforced composite products having wear resistance and useful in  
circuit boards)

RE.CNT 17 THERE ARE 17 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

- (1) Anon; PATENT ABSTRACTS OF JAPAN 1990, V014(423), PC-0757
- (2) Hitachi Chem Co Ltd; JP 08309928 A 1996 HCPLUS
- (3) Lachasse, G; US 5217778 A 1993
- (4) Lawton, E; WO 0021899 A 2000 HCPLUS
- (5) Lawton, E; WO 0021900 A 2000 HCPLUS
- (6) Matsushita Electric Works Ltd; JP 09118759 A 1997 HCPLUS
- (7) Nitto Boseki Co Ltd; JP 02160944 A 1990
- (8) Novich, B; CIRCUITREE 1999, V12(3), P44
- (9) Novich, B; Hybon RCY yarns:a laminate reinforcement developed for printed circuit boards
- (10) Novich, B; PRINT CIRCUIT FABR; PRINTED CIRCUIT FABRICATION 1999 1999, V22(4), P52
- (11) Philipps, T; US 3312569 A 1967 HCPLUS
- (12) Ppg Ind Ohio Inc; WO 9944955 A 1999 HCPLUS
- (13) Ppg Ind Ohio Inc; WO 9944956 A 1999 HCPLUS
- (14) Ppg Ind Ohio Inc; WO 9944958 A 1999 HCPLUS
- (15) Ppg Ind Ohio Inc; WO 9944959 A 1999 HCPLUS
- (16) Ppg Industries Inc; WO 9639364 A 1996 HCPLUS
- (17) Taizou, S; US 5733823 A 1998 HCPLUS

IT 10043-11-5, PT 160, uses

RL: PRP (Properties); TEM (Technical or engineered material use); USES  
(Uses)

(PolarTherm PT 160; **coated glass**  
**fiber strands** for reinforced composite products  
having wear resistance and useful in circuit boards)

RN 10043-11-5 HCPLUS

CN Boron nitride (BN) (8CI, 9CI) (CA INDEX NAME)

B≡N

L54 ANSWER 11 OF 52 HCPLUS COPYRIGHT 2003 ACS DUPLICATE 5  
 AN 2001:693415 HCPLUS  
 DN 135:258621  
 TI Impregnated glass fiber strands  
and products including the same  
 IN Lawton, Ernest L.; Velpari, Vedagiri; Rice, William B.; Robertson, Walter  
J.; Novich, Bruce E.; Wu, Xiang; Lammon-Hilinski, Kami  
 PA PPG Industries Ohio, Inc., USA  
 SO PCT Int. Appl., 166 pp.  
 CODEN: PIXXD2  
 DT Patent  
 LA English  
 IC ICM C08J005-08  
 ICS H05K001-03; C03C025-10  
 CC 42-10 (Coatings, Inks, and Related Products)  
 Section cross-reference(s): 38, 40, 76  
 FAN.CNT 20  

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2001068748	A1	20010920	WO 2001-US8471	20010316
	W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR,			

HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT,  
 LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU,  
 SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU,  
 ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM  
 RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY,  
 DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF,  
 BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG

US 6419981	B1	20020716	US 2000-620524	20000720
PRAI US 2000-527034	A	20000316		
US 2000-548379	A	20000412		
US 2000-568916	A	20000511		
US 2000-620523	A	20000720		
US 2000-620524	A	20000720		
US 2000-620525	A	20000720		
US 2000-620526	A	20000720		
US 2000-706268	A	20001103 <i>mu m 17X1</i>		
US 1998-34056	B2	19980303		
US 1998-34077	B2	19980303		
US 1998-34078	B2	19980303		
US 1998-34525	B2	19980303		
US 1998-34663	B2	19980303		
US 1998-130270	B2	19980806		
US 1998-170565	A2	19981013		
US 1998-170566	A2	19981013		
US 1998-170578	A2	19981013		
US 1998-170579	A2	19981013		
US 1998-170780	A2	19981013		
US 1998-170781	A2	19981013		
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US 1999-133076P	P	19990507		
US 1999-136110P	P	19990526		
US 1999-146337P	P	19990730		
US 1999-146605P	P	19990730		
US 1999-146862P	P	19990803		
WO 1999-US21442	A2	19991008		
WO 1999-US21443	A2	19991008		
US 2000-183562P	P	20000218		
US 2000-668916	B1	20000511		

AB A partially coated fiber **strand** comprises many fibers having a coating compn. on at least a portion of a surface of .gtoreq.1 of the fibers, the coating compn. comprising (a) many discrete particles formed from materials selected from org. materials, inorg. polymeric materials, composite materials and mixts., the particles having an av. particle size, 0.1- 5.0 .mu.m; (b) .gtoreq.1 lubricious material different from the many discrete particles; and (c) .gtoreq.1 film forming material. The coating is not removed prior to impregnating the fabric with polymeric resin and thus the fabric is free from thermal treatment and thermal degrdn.

ST **impregnated glass fiber** textile laminate circuit board; **coating** material **impregnated glass fiber** circuit board; particle size **coating** material **impregnated glass fiber**

IT **Glass fibers**, uses  
 RL: PEP (Physical, engineering or chemical process); PRP (Properties); TEM (Technical or engineered material use); PROC (Process); USES (Uses)  
 (Adflo C; **impregnated glass fiber**  
**strands** having resin compatible **coating** compns. and products including the same)

IT Rosin  
 RL: TEM (Technical or engineered material use); USES (Uses)  
 (Dynacoll Si 100; **impregnated glass fiber**)

strands having resin compatible coating compns. and products including the same)

IT Styrene-butadiene rubber, uses  
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)  
(Mapeg 600DOT; **impregnated glass fiber strands** having resin compatible coating compns. and products including the same)

IT Linseed oil  
Soybean oil  
RL: MOA (Modifier or additive use); USES (Uses)  
(epoxidized; **impregnated glass fiber strands** having resin compatible coating compns. and products including the same)

IT Vinyl compounds, uses  
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)  
(ester group-contg., polymers; **impregnated glass fiber strands** having resin compatible coating compns. and products including the same)

IT Coating materials  
Coupling agents  
**Fiber-reinforced composites**  
Laminated materials  
Lubricants  
Particle size  
Printed circuit boards  
Sizing  
Tensile strength  
Textiles  
Thermal conductors  
(**impregnated glass fiber strands** having resin compatible coating compns. and products including the same)

IT Polysiloxanes, uses  
RL: MOA (Modifier or additive use); USES (Uses)  
(**impregnated glass fiber strands** having resin compatible coating compns. and products including the same)

IT **Acrylic polymers**, uses  
Aminoplasts  
Epoxy resins, uses  
Polyamides, uses  
**Polycarbonates**, uses  
Polyesters, uses  
Polyolefins  
Polyoxyalkylenes, uses  
Polyphosphazenes  
Polysilanes  
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)  
(**impregnated glass fiber strands** having resin compatible coating compns. and products including the same)

IT Glycols, uses  
Phenols, uses  
RL: TEM (Technical or engineered material use); USES (Uses)  
(**impregnated glass fiber strands** having resin compatible coating compns. and products including the same)

IT Vinyl compounds, uses  
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)  
(polymers; **impregnated glass fiber strands** having resin compatible coating compns. and products including the same)

IT Polyurethanes, uses  
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)  
(thermoplastic; **impregnated glass fiber strands** having resin compatible coating compns. and products including the same)

IT Plastics, uses  
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)  
(thermoplastics; **impregnated glass fiber strands** having resin compatible coating compns. and products including the same)

IT Plastics, uses  
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)  
(thermosetting; **impregnated glass fiber strands** having resin compatible coating compns. and products including the same)

IT Fats and Glyceridic oils, uses  
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)  
(vegetable, ethoxylated; **impregnated glass fiber strands** having resin compatible coating compns. and products including the same)

IT 26590-20-5, AC 220J  
RL: TEM (Technical or engineered material use); USES (Uses)  
(AC 220J; **impregnated glass fiber strands** having resin compatible coating compns. and products including the same)

IT 25068-38-6, Epon 880  
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)  
(Epon 826; **impregnated glass fiber strands** having resin compatible coating compns. and products including the same)

IT 9016-45-9, Macol NP 6  
RL: MOA (Modifier or additive use); USES (Uses)  
(Iconol NP 6; **impregnated glass fiber strands** having resin compatible coating compns. and products including the same)

IT 9004-81-3, Kessco PEG 600  
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)  
(Kessco PEG 600; **impregnated glass fiber strands** having resin compatible coating compns. and products including the same)

IT 10043-11-5, Releasecoat-Conc 25, uses  
RL: TEM (Technical or engineered material use); USES (Uses)  
(PolarTherm PT 160, Releasecoat-Conc 25; **impregnated glass fiber strands** having resin compatible coating compns. and products including the same)

IT 106392-12-5, Pluronic F 108  
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)

(Synperonic F 108; **impregnated glass fiber strands** having resin compatible coating compns. and products including the same)

IT 64-19-7, Acetic acid, uses 1320-67-8, Dowanol PM 202537-92-6, Ropaque HP 1055 226558-99-2, Mazu DF 136 285980-72-5, Ropaque OP 96  
RL: MOA (Modifier or additive use); USES (Uses)  
**(impregnated glass fiber strands**  
having resin compatible coating compns. and products including the same)

IT 9003-39-8, Pvp K-30 9005-65-6, Tmaz 81 9036-19-5, Macol OP 10 12624-35-0, Versamid 140 24937-05-1, Desmophen 2000 25085-99-8, Epi-Rez 3522 25322-68-3, Polyoxy WSR 301 33294-14-3, Epon 1120A80 67185-58-4, Emery 6717 87209-95-8, Protolube HD 91727-33-2, Euredur 140 107852-39-1, Emery 6760 217478-86-9, RD 847A 241811-13-2, Epi-Rez 3522W66  
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)  
**(impregnated glass fiber strands**  
having resin compatible coating compns. and products including the same)

IT 919-30-2, A 1100 2530-83-8, A 187 2530-85-0, A 174  
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)  
**(impregnated glass fiber strands**  
having resin compatible coating compns. and products including the same)

IT 461-58-5, Dicyandiamide 540-10-3, Stepantex 653 693-98-1, 2-Methylimidazole 7782-42-5, Graphite, uses 14807-96-6, Vantalc F 2003, uses 23779-32-0, .gamma.-Ureidopropyltriethoxysilane 59125-51-8, Araldite Dy 062  
RL: TEM (Technical or engineered material use); USES (Uses)  
**(impregnated glass fiber strands**  
having resin compatible coating compns. and products including the same)

RE.CNT 17 THERE ARE 17 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

- (1) Anon; PATENT ABSTRACTS OF JAPAN 1990, V014(423), PC-0757
- (2) Hitachi Chem Co Ltd; JP 08309928 A 1996 HCPLUS
- (3) Lachasse, G; US 5217778 A 1993
- (4) Lawton, E; WO 0021899 A 2000 HCPLUS
- (5) Lawton, E; WO 0021900 A 2000 HCPLUS
- (6) Matsushita Electric Works Ltd; JP 09118759 A 1997 HCPLUS
- (7) Nitto Boseki Co Ltd; JP 02160944 A 1990
- (8) Novich, B; CIRCUITREE 1999, V12(3), P44
- (9) Novich, B; Hybon RCY yarns:a laminate reinforcement developed for printed circuit boards
- (10) Novich, B; PRINT CIRCUIT FABR; PRINTED CIRCUIT FABRICATION 1999 1999, V22(4), P52
- (11) Philipps, T; US 3312569 A 1967 HCPLUS
- (12) Ppg Ind Ohio Inc; WO 9944955 A 1999 HCPLUS
- (13) Ppg Ind Ohio Inc; WO 9944956 A 1999 HCPLUS
- (14) Ppg Ind Ohio Inc; WO 9944958 A 1999 HCPLUS
- (15) Ppg Ind Ohio Inc; WO 9944959 A 1999 HCPLUS
- (16) Ppg Industries Inc; WO 9639364 A 1996 HCPLUS
- (17) Taizou, S; US 5733823 A 1998 HCPLUS

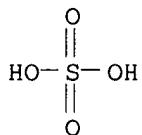
IT 10043-11-5, Releasecoat-Conc 25, uses  
RL: TEM (Technical or engineered material use); USES (Uses)  
**(PolarTherm PT 160, Releasecoat-Conc 25; **impregnated glass fiber strands** having resin compatible coating compns. and products including the same)**

A1 | 2 | 7429-90-5

RN 10043-11-5 HCAPLUS  
 CN Boron nitride (BN) (8CI, 9CI) (CA INDEX NAME)

B≡N

RN 13397-24-5 HCAPLUS  
 CN Gypsum (Ca(SO<sub>4</sub>).2H<sub>2</sub>O) (9CI) (CA INDEX NAME)



Ca

2 H<sub>2</sub>O

L54 ANSWER 13 OF 52 HCAPLUS COPYRIGHT 2003 ACS DUPLICATE 7  
 AN 2001:137278 HCAPLUS  
 DN 134:164266  
 TI **Impregnated glass fiber strands**  
 and methods of inhibiting abrasive wear of a fiber  
 IN Novich, Bruce E.; Lammon-Hilinski, Kami; Robertson, Walter J.; Wu, Xiang;  
Velpari, Vedagiri; Lawton, Ernest L.; Rice, William B.  
 PA PPG Industries Ohio, Inc., USA  
 SO PCT Int. Appl., 158 pp.  
 CODEN: PIXXD2  
 DT Patent  
 LA English  
 IC C08J005-08; H05K001-03; C03C025-10  
 CC 38-3 (Plastics Fabrication and Uses)  
 Section cross-reference(s): 40  
 FAN.CNT 20

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	<u>WO 2001012702</u>	A1	<u>20010222</u>	WO 2000-US20523	20000728
	W:	AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM			
	RW:	GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG			
	<u>WO 2000021899</u>	A1	<u>20000420</u>	WO 1999-US21442	19991008
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 MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM,  
 TR, TT, UA, UG, US, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU,  
 TJ, TM

RW: GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE,  
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 CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG

WO 2000021900 A1 20000420 WO 1999-US21443 19991008

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 KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN,  
 MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM,  
 TR, TT, UA, UG, US, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU,  
 TJ, TM

RW: GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE,  
 DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF,  
 CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG

EP 1204697 A1 20020515 EP 2000-950805 20000728

R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,  
 IE, SI, LT, LV, FI, RO, MK, CY, AL

BR 2000012887 A 20020723 BR 2000-12887 20000728

PRAI US 1999-146337P P 19990730  
 US 1999-146605P P 19990730  
 US 1999-146862P P 19990803  
 WO 1999-US21442 A 19991008  
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 US 2000-183562P P 20000218  
 US 2000-527034 A 20000316  
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 US 2000-668916 A 20000511  
 US 2000-620523 A 20000720  
 US 1998-170566 A 19981013  
 US 1998-170578 A 19981013  
 US 1999-133075P P 19990507  
 US 1999-133076P P 19990507  
 US 2000-568916 A 20000511  
 WO 2000-US20523 W 20000728

AB The title **fiber strands** are coated with a resin compatible **compn.** comprising (a) a solid lubricant particles and (b) .gtoreq.1 polymeric material. The resin compatible coating **compn.** comprises (a) hollow, nonheat expandable org. particles and (b) .gtoreq.1 lubricious material different from the .gtoreq.1 hollow org. particle.

ST **coated glass fiber** textile laminate circuit board; thermal conductor size glass fiber; abrasion resistance **coated glass fiber**; lubricant solid **coating glass fiber**

IT Coating materials  
 (abrasion-resistant; **coated glass fiber** **strands** with abrasion resistance for substrates for circuit boards)

IT Epoxy resins, uses  
 RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)  
 (acrylates; **coated glass fiber** **strands** with abrasion resistance for substrates for circuit boards)

IT **Fiber-reinforced composites**  
 Sizes (agents)

Textiles  
Thermal conductors  
    (**coated glass fiber strands**  
        with abrasion resistance for substrates for circuit boards)  
IT Chalcogenides  
RL: MOA (Modifier or additive use); USES (Uses)  
    (**coated glass fiber strands**  
        with abrasion resistance for substrates for circuit boards)  
IT **Glass fibers**, uses  
RL: PEP (Physical, engineering or chemical process); PRP (Properties); TEM (Technical or engineered material use); PROC (Process); USES (Uses)  
    (**coated glass fiber strands**  
        with abrasion resistance for substrates for circuit boards)  
IT Polyoxalkylenes, uses  
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)  
    (**coated glass fiber strands**  
        with abrasion resistance for substrates for circuit boards)  
IT **Acrylic polymers**, uses  
Aminoplasts  
Epoxy resins, uses  
Phenolic resins, uses  
Polyamides, uses  
    **Polycarbonates**, uses  
Polyesters, uses  
Polyolefins  
Polyurethanes, uses  
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)  
    (**coated glass fiber strands**  
        with abrasion resistance for substrates for circuit boards)  
IT Linseed oil  
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)  
    (epoxidized; **coated glass fiber**  
        strands with abrasion resistance for substrates for circuit boards)  
IT **Mica**-group minerals, uses  
RL: MOA (Modifier or additive use); USES (Uses)  
    (in **coated glass fiber strands**  
        with abrasion resistance for substrates for circuit boards)  
IT Printed circuit boards  
    (laminates; **coated glass fiber**  
        strands with abrasion resistance for substrates for circuit boards)  
IT Vinyl compounds, uses  
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)  
    (polymer; **coated glass fiber**  
        strands with abrasion resistance for substrates for circuit boards)  
IT Coating materials  
    (powder; **coated glass fiber**  
        strands with abrasion resistance for substrates for circuit boards)  
IT Lubricants  
    (solid; **coated glass fiber**  
        strands with abrasion resistance for substrates for circuit boards)  
IT Plastics, uses

RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)  
(thermoplastics; **coated glass fiber strands** with abrasion resistance for substrates for circuit boards)

IT Plastics, uses  
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)  
(thermosetting; **coated glass fiber strands** with abrasion resistance for substrates for circuit boards)

IT Fats and Glyceridic oils, uses  
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)  
(vegetable, ethoxylated; **coated glass fiber strands** with abrasion resistance for substrates for circuit boards)

IT 9003-39-8, PVP K-30 24937-05-1, Desmophen 2000 25322-68-3, Polyox WSR 301 63215-53-2, Bisphenol A-epichlorohydrin-tetrahydrophthalic anhydride copolymer 67185-58-4, Emery 6717 87209-95-8, Protolube HD 91727-33-2, Euredur 140 107852-39-1, Emery 6760 115335-70-1 202537-92-6, RoPaque HP-1055 217478-86-9, RD 847A 241811-13-2, Epi-Rez 3522W66 285980-72-5, RoPaque OP-96 325459-20-9, Alubraspin 226  
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)  
(**coated glass fiber strands** with abrasion resistance for substrates for circuit boards)

IT 919-30-2, A-1100 2530-83-8, A-187 2530-85-0, A-174  
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)  
(**coated glass fiber strands** with abrasion resistance for substrates for circuit boards)

IT 471-34-1, Calcium carbonate, uses  
1314-13-2, Zinc oxide, uses 1317-33-5  
, Molybdenum disulfide, uses 1318-74-7,  
Kaolinite, uses 1318-93-0, Montmorillonite, uses 7440-22-4, Silver, uses 7440-28-0, Thallium, uses 7440-31-5, Tin, uses 7440-50-8, Copper, uses 7440-57-5, Gold, uses 7440-66-6, Zinc, uses 7440-74-6, Indium, uses 7782-42-5, Graphite, uses 7789-75-5, Calcium fluoride, uses 7790-80-9,  
Cadmium iodide 12039-55-3, Tantalum diselenide 12058-18-3, Molybdenum diselenide 12067-46-8, Tungsten diselenide 12138-09-9, Tungsten disulfide 12143-72-5, Tantalum disulfide 12751-47-2, Silver sulfide 13397-24-5, Gypsum, uses 14807-96-6,  
Talc, uses  
RL: MOA (Modifier or additive use); USES (Uses)  
(in **coated glass fiber strands** with abrasion resistance for substrates for circuit boards)

IT 10043-11-5, Polartherm PT 120, uses  
RL: MOA (Modifier or additive use); PRP (Properties); USES (Uses)  
(in **coated glass fiber strands** with abrasion resistance for substrates for circuit boards)

RE.CNT 17 THERE ARE 17 CITED REFERENCES AVAILABLE FOR THIS RECORD

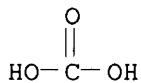
RE

(1) Anon; PATENT ABSTRACTS OF JAPAN 1990, V014(423), PC-0757  
(2) Hitachi Chem Co Ltd; JP 08309928 A 1996 HCPLUS  
(3) Lachasse, G; US 5217778 A 1993  
(4) Lawton, E; WO 0021899 A 2000 HCPLUS  
(5) Lawton, E; WO 0021900 A 2000 HCPLUS

(6) Matsushita Electric Works Ltd; JP 09118759 A 1997 HCAPLUS  
 (7) Nitto Boseki Co Ltd; JP 02160944 A 1990  
 (8) Novich, B; CIRCUITREE 1999, V12(3), P44  
 (9) Novich, B; Glass yarn:Sized for better PCB fabrication and properties  
 (10) Novich, B; Hybon RCY yarns:a laminate reinforcement developed for printed circuit boards  
 (11) Philipps, T; US 3312569 A 1967 HCAPLUS  
 (12) Ppg Ind Ohio Inc; WO 9944956 A 1999 HCAPLUS  
 (13) Ppg Ind Ohio Inc; WO 9944958 A 1999 HCAPLUS  
 (14) Ppg Ind Ohio Inc; WO 9944959 A 1999 HCAPLUS  
 (15) Ppg Industries Inc; WO 9639364 A 1996 HCAPLUS  
 (16) Teldix Gmbh; WO 9001860 A 1990  
 (17) Yamao, S; US 5733823 A 1998 HCAPLUS

IT 471-34-1, Calcium carbonate, uses  
 1314-13-2, Zinc oxide, uses 1317-33-5  
 , Molybdenum disulfide, uses 1318-74-7,  
 Kaolinite, uses 7440-22-4, Silver, uses  
 7440-50-8, Copper, uses 7440-57-5,  
 Gold, uses 7789-75-5, Calcium fluoride  
 , uses 13397-24-5, Gypsum, uses 14807-96-6,  
 Talc, uses  
 RL: MOA (Modifier or additive use); USES (Uses)  
 (in coated glass fiber strands  
 with abrasion resistance for substrates for circuit boards)

RN 471-34-1 HCAPLUS  
 CN Carbonic acid calcium salt (1:1) (8CI, 9CI) (CA INDEX NAME)



Ca

RN 1314-13-2 HCAPLUS  
 CN Zinc oxide (ZnO) (9CI) (CA INDEX NAME)

O—Zn

RN 1317-33-5 HCAPLUS  
 CN Molybdenum sulfide (MoS<sub>2</sub>) (8CI, 9CI) (CA INDEX NAME)

S—Mo—S

RN 1318-74-7 HCAPLUS  
 CN Kaolinite (Al<sub>2</sub>(OH)<sub>4</sub>(Si<sub>2</sub>O<sub>5</sub>)) (9CI) (CA INDEX NAME)

Component	Ratio	Component
		Registry Number
O <sub>5</sub> Si <sub>2</sub>	1	20328-07-8
HO	4	14280-30-9
Al	2	7429-90-5

RN 7440-22-4 HCAPLUS  
CN Silver (8CI, 9CI) (CA INDEX NAME)

Ag

RN 7440-50-8 HCAPLUS  
CN Copper (7CI, 8CI, 9CI) (CA INDEX NAME)

Cu

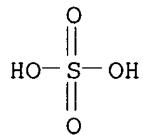
RN 7440-57-5 HCAPLUS  
CN Gold (8CI, 9CI) (CA INDEX NAME)

Au

RN 7789-75-5 HCAPLUS  
CN Calcium fluoride (CaF<sub>2</sub>) (9CI) (CA INDEX NAME)

F—Ca—F

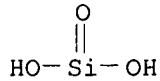
RN 13397-24-5 HCAPLUS  
CN Gypsum (Ca(SO<sub>4</sub>).2H<sub>2</sub>O) (9CI) (CA INDEX NAME)



Ca

2 H<sub>2</sub>O

RN 14807-96-6 HCAPLUS  
CN Talc (Mg<sub>3</sub>H<sub>2</sub>(SiO<sub>3</sub>)<sub>4</sub>) (9CI) (CA INDEX NAME)



3/4 Mg

IT 10043-11-5, Polartherm PT 120, uses  
 RL: MOA (Modifier or additive use); PRP (Properties); USES (Uses)  
 (in **coated glass fiber strands**  
 with abrasion resistance for substrates for circuit boards)  
 RN 10043-11-5 HCAPLUS  
 CN Boron nitride (BN) (8CI, 9CI) (CA INDEX NAME)

B=N

L54 ANSWER 14 OF 52 HCAPLUS COPYRIGHT 2003 ACS DUPLICATE 8  
 AN 2001:101073 HCAPLUS  
 DN 134:164559  
 TI **Impregnated glass fiber strands**  
 and **coated strand** products  
 IN Novich, Bruce E.; Lammon-hilinski, Kami; Robertson, Walter J.; Wu, Xiang;  
Velpari, Vedagiri; Lawton, Ernest L.; Rice, William B.  
 PA Ppg Industries Ohio, Inc., USA  
 SO PCT Int. Appl., 163 pp.  
 CODEN: PIXXD2  
 DT Patent  
 LA English  
 IC C03C025-10; C08J005-08; H05K001-03  
 CC 42-10 (**Coatings, Inks, and Related Products**)  
 Section cross-reference(s): 38, 40

FAN.CNT 20

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2001009054	A1	20010208	WO 2000-US20459	20000728
	W:	AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM			
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WO 2000021900	A1	20000420	WO 1999-US21443	19991008
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RW:	GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG			
<u>EP 1204613</u>	A1	20020515	EP 2000-948977	20000728
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BR 2000012885	A	20020716	BR 2000-12885	20000728
US 2002055313	A1	20020509	US 2001-795622	20010228
X US 2002058449	A1	20020516	US 2001-793911	20010228
X US 2002086598	A1	20020704	US 2001-793900	20010228
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US 1999-146605P	P	19990730		
US 1999-146862P	P	19990803		
WO 1999-US21442	A	19991008		
WO 1999-US21443	A	19991008		
US 2000-183562P	P	20000218		
US 2000-527034	P	20000316		
US 2000-548379	A	20000412		
US 2000-668916	A	20000511		
US 2000-233460P	P	20000918		
US 1998-170566	A	19981013		
US 1998-170578	A	19981013		
US 1999-133075P	P	19990507		
US 1999-133076P	P	19990507		
US 2000-568916	A	20000511		
US 2000-620523	A	20000720		
WO 2000-US20459	W	20000728		
AB	<p>The partially coated <b>fiber strand</b> (for use in circuit board laminates) comprises many fibers, the coating (or size) comprising an org. component and lamellar particles having a thermal cond. .gtoreq.1 W/m K at 300K. The coating compn. further comprises (a) many discrete particles formed from materials selected from nonheat expandable org. materials, inorg. polymeric materials, nonheat expandable composite materials and mixts., the particles having an av. particle size sufficient to allow <b>strand</b> wet out, (b) .gtoreq.1 lubricants, and (c) .gtoreq.1 film-forming material. <b>Glass fibers</b> have a coating compn. comprising (a) many lamellar, inorg. particles having a Mohs' hardness value which does not exceed the Mohs' hardness value of the glass fibers and (b) .gtoreq.1 polymeric material.</p>			
ST	<p><b>coated glass fiber</b> textile laminate circuit board; thermal conductor size glass fiber; abrasion resistance</p> <p><b>coated glass fiber</b></p>			
IT	<p><b>Coating materials</b></p> <p>(abrasion-resistant; <b>coated glass fiber</b> strands with abrasion resistance for substrates for circuit boards)</p>			
IT	<p>Epoxy resins, uses</p> <p>RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)</p> <p>(acrylates; <b>coated glass fiber</b> strands with abrasion resistance for substrates for circuit boards)</p>			

IT **Fiber-reinforced composites**  
Lubricants  
Sizes (agents)  
Textiles  
Thermal conductors  
    (**coated glass fiber strands**  
        with abrasion resistance for substrates for circuit boards)

IT **Glass fibers, uses**  
RL: PEP (Physical, engineering or chemical process); PRP (Properties); TEM (Technical or engineered material use); PROC (Process); USES (Uses)  
    (**coated glass fiber strands**  
        with abrasion resistance for substrates for circuit boards)

IT **Polyoxyalkylenes, uses**  
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)  
    (**coated glass fiber strands**  
        with abrasion resistance for substrates for circuit boards)

IT **Acrylic polymers, uses**  
Aminoplasts  
Epoxy resins, uses  
Polyamides, uses  
    **Polycarbonates, uses**  
Polyesters, uses  
Polygermanes  
Polyolefins  
Polyphosphazenes  
Polysilanes  
Polysiloxanes, uses  
Polyurethanes, uses  
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)  
    (**coated glass fiber strands**  
        with abrasion resistance for substrates for circuit boards)

IT **Linseed oil**  
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)  
    (epoxidized; **coated glass fiber strands**  
        with abrasion resistance for substrates for circuit boards)

IT **Printed circuit boards**  
    (laminates; **coated glass fiber strands**  
        with abrasion resistance for substrates for circuit boards)

IT **Grease (food-derived)**  
    (lubricant; **coated glass fiber strands**  
        with abrasion resistance for substrates for circuit boards)

IT **Waxes**  
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)  
    (lubricant; **coated glass fiber strands**  
        with abrasion resistance for substrates for circuit boards)

IT **Liquids**  
    (oils, lubricant; **coated glass fiber strands**  
        with abrasion resistance for substrates for circuit boards)

IT **Vinyl compounds, uses**  
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)

(polymers; **coated glass fiber**  
strands with abrasion resistance for substrates for circuit  
boards)

IT Coating materials  
(powder; **coated glass fiber**  
strands with abrasion resistance for substrates for circuit  
boards)

IT Plastics, uses  
RL: POF (Polymer in formulation); TEM (Technical or engineered material  
use); USES (Uses)  
(thermoplastics; **coated glass fiber**  
strands with abrasion resistance for substrates for circuit  
boards)

IT Plastics, uses  
RL: POF (Polymer in formulation); TEM (Technical or engineered material  
use); USES (Uses)  
(thermosetting; **coated glass fiber**  
strands with abrasion resistance for substrates for circuit  
boards)

IT Fats and Glyceridic oils, uses  
RL: PRP (Properties); TEM (Technical or engineered material use); USES  
(Uses)  
(vegetable, ethoxylated; **coated glass fiber**  
strands with abrasion resistance for substrates for circuit  
boards)

IT 9003-39-8, PVP K-30 24937-05-1, Desmophen 2000 25322-68-3, Polyox WSR  
301 63215-53-2 67185-58-4, Emery 6717 87209-95-8, Protolube HD  
91727-33-2, Euredur 140 107852-39-1, Emery 6760 115335-70-1  
202537-92-6, RoPaque HP-1055 217478-86-9, RD 847A 241811-13-2, Epi-Rez  
3522W66 285980-72-5, RoPaque OP-96 325459-20-9, Alubraspin 226  
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or  
engineered material use); USES (Uses)  
(**coated glass fiber strands**  
with abrasion resistance for substrates for circuit boards)

IT 919-30-2, A-1100 2530-83-8, A-187 2530-85-0, A-174 10043-11-5  
, Polartherm PT 120, uses  
RL: PRP (Properties); TEM (Technical or engineered material use); USES  
(Uses)  
(**coated glass fiber strands**  
with abrasion resistance for substrates for circuit boards)

IT 1317-33-5, Molybdenum disulfide, uses  
7782-42-5, Graphite, uses 12039-55-3, Tantalum diselenide  
12058-18-3, Molybdenum diselenide 12067-46-8, Tungsten diselenide  
12138-09-9, Tungsten disulfide 12143-72-5, Tantalum disulfide  
RL: TEM (Technical or engineered material use); USES (Uses)  
(coating contg.; **coated glass**  
**fiber strands** with abrasion resistance for substrates  
for circuit boards)

RE.CNT 14 THERE ARE 14 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

- (1) Hitachi Chem Co Ltd; JP 08-309928 A 1996 HCPLUS
- (2) Lachasse, G; US 5217778 A 1993
- (3) Lawton, E; WO 0021899 A 2000 HCPLUS
- (4) Lawton, E; WO 0021900 A 2000 HCPLUS
- (5) Matsushita Electric Works Ltd; JP 90118759 A 1997
- (6) Nitto Boseki Co Ltd; JP 02-160944 A 1990, V14(423), PC-0757
- (7) Novich, B; Circuitree 1999, V12(3), P44
- (8) Novich, B; Print Circuit Fabr 1999, V22(4), P52
- (9) Philipps, T; US 3312569 A 1967 HCPLUS
- (10) Ppg Ind Ohio Inc; WO 9944956 A 1999 HCPLUS

(11) Ppg Ind Ohio Inc; WO 9944958 A 1999 HCPLUS  
 (12) Ppg Ind Ohio Inc; WO 9944959 A 1999 HCPLUS  
 (13) Ppg Industries Inc; WO 9639364 A 1996 HCPLUS  
 (14) Taizou, S; US 5733823 A 1998 HCPLUS  
 IT 10043-11-5, Polartherm PT 120, uses  
 RL: PRP (Properties); TEM (Technical or engineered material use); USES  
 (Uses)  
 (coated glass fiber strands  
 with abrasion resistance for substrates for circuit boards)  
 RN 10043-11-5 HCPLUS  
 CN Boron nitride (BN) (8CI, 9CI) (CA INDEX NAME)

B≡N

IT 1317-33-5, Molybdenum disulfide, uses  
 RL: TEM (Technical or engineered material use); USES (Uses)  
 (coating contg.; coated glass  
 fiber strands with abrasion resistance for substrates  
 for circuit boards)  
 RN 1317-33-5 HCPLUS  
 CN Molybdenum sulfide (MoS<sub>2</sub>) (8CI, 9CI) (CA INDEX NAME)

S≡Mo≡S

L54 ANSWER 15 OF 52 HCPLUS COPYRIGHT 2003 ACS  
 AN 2001:886395 HCPLUS  
 DN 136:21043  
 TI UV-curable superabsorbent and water-resistant coatings and articles coated  
 with the same  
 IN Carter, Curtis  
 PA Owens Corning, USA  
 SO PCT Int. Appl., 17 pp.  
 CODEN: PIXXD2  
 DT Patent  
 LA English  
 IC ICM C09D151-00  
 ICS C09D004-00; C09D004-06; C08F265-06; C09D133-00; C08F290-06  
 CC 42-10 (Coatings, Inks, and Related Products)  
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2001092433	A1	20011206	WO 2001-US15964	20010516
	W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM			
	RW:	GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG			
	BR	2001006676	A 20020430	BR 2001-6676	20010516
	EP	1208172	A1 20020529	EP 2001-939084	20010516
	R:	AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR			

NO 2002000435	A 20020128	NO 2002-435	20020128
PRAI US 2000-583484	A 20000531		
WO 2001-US15964	W 20010516		

AB The coating compn., useful for coating reinforced or molded articles (such as tapes, fabrics, rods, etc.) requiring water-resistant surfaces, comprises a non-aq. soln. of a water-swellable polymer and a liq. UV-curable resin, and optionally a silane. Thus, Advantex R 25H (glass reinforcing fiber) was impregnated with a blend of 56% 500 Vinch UV (polyacrylate) and 44% AP 80HS (water-swellable polyacrylate), and UV cured, showing good water absorption.

ST polyacrylate superabsorbent water resistant coating; glass fiber reinforced material superabsorbent coating

IT Glass fibers, miscellaneous  
 RL: MSC (Miscellaneous)  
     (Advantex R 25H; UV-curable superabsorbent and water-resistant coatings for coating reinforced or molded articles)

IT Cables (mechanical)  
 Construction materials  
 Laminated materials  
 Mats  
 Paper  
 Textiles  
 Wood  
     (UV-curable superabsorbent and water-resistant coatings for)

IT Molded plastics, miscellaneous  
 RL: MSC (Miscellaneous)  
     (UV-curable superabsorbent and water-resistant coatings for)

IT Coating materials  
     (UV-curable; UV-curable superabsorbent and water-resistant coatings for coating reinforced or molded articles)

IT **Acrylic polymers, uses**  
 RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)  
     (UV-curable; UV-curable superabsorbent and water-resistant coatings for coating reinforced or molded articles)

IT Reinforced plastics  
 RL: MSC (Miscellaneous)  
     (fiber-reinforced; UV-curable superabsorbent and water-resistant coatings for)

IT **Acrylic polymers, uses**  
 RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)  
     (powders, water-swellable; UV-curable superabsorbent and water-resistant coatings for coating reinforced or molded articles)

IT **Fibers**  
 RL: MSC (Miscellaneous)  
     (strands; UV-curable superabsorbent and water-resistant coatings for)

IT Materials  
     (tapes; UV-curable superabsorbent and water-resistant coatings for)

IT Coating materials  
     (water-absorbing; UV-curable superabsorbent and water-resistant coatings for coating reinforced or molded articles)

IT Coating materials  
     (water-resistant; UV-curable superabsorbent and water-resistant coatings for coating reinforced or molded articles)

IT 7803-62-5, Silane, uses  
 RL: MOA (Modifier or additive use); USES (Uses)  
     (UV-curable superabsorbent and water-resistant coatings for coating

reinforced or molded articles)  
 IT 250216-14-9D, Cabloc AP 80HS, a swellable polyacrylate powder  
 from Emerging Technologies Inc.; see p.8  
 RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or  
 engineered material use); USES (Uses)  
 (UV-curable superabsorbent and water-resistant coatings for coating  
 reinforced or molded articles)

RE.CNT 8 THERE ARE 8 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

- (1) Brehm, M; US 5700576 A 1997 HCPLUS
- (2) Centre Nat Rech Scient; FR 2595365 A 1987 HCPLUS
- (3) Chi-Long, L; US 4600751 A 1986 HCPLUS
- (4) Desoto Inc; EP 0134494 A 1985 HCPLUS
- (5) Fujikura Kasei Kk; EP 0939109 A 1999 HCPLUS
- (6) Owens Illinois Glass Co; GB 955080 A 1964 HCPLUS
- (7) Rohm & Haas; EP 0486278 A 1992 HCPLUS
- (8) Wolfersberger, M; US 5409971 A 1995 HCPLUS

L54 ANSWER 16 OF 52 HCPLUS COPYRIGHT 2003 ACS

AN 2001:137277 HCPLUS

DN 134:164265

TI **Impregnated glass fiber strands,**  
 preprep, reinforced laminate, electronic support for circuit board, and  
 their manufacture

IN Novich, Bruce E.; Lammon-Hilinski, Kami; Robertson, Walter J.; Wu, Xiang;  
Velpari, Vedagiri; Lawton, Ernest L.; Rice, William B.

PA PPG Industries Ohio, Inc., USA

SO PCT Int. Appl., 160 pp.

CODEN: PIXXD2

DT Patent

LA English

IC ICM C08J005-08

ICS H05K001-03; C03C025-10

CC 38-3 (Plastics Fabrication and Uses)

Section cross-reference(s): 40

FAN.CNT 20

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2001012701	A1	20010222	WO 2000-US20457	20000728
	W:	AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM		RW:	GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG
	WO 2000021899	A1	20000420	WO 1999-US21442	19991008
	W:	AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM		RW:	GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG
	WO 2000021900	A1	20000420	WO 1999-US21443	19991008
	W:	AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE,			

DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP,  
 KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN,  
 MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM,  
 TR, TT, UA, UG, US, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU,  
 TJ, TM  
 RW: GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE,  
 DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF,  
 CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG  
 EP 1204696 A1 20020515 EP 2000-950780 20000728  
 R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,  
 IE, SI, LT, LV, FI, RO, MK, CY, AL  
 BR 2000012872 A 20020723 BR 2000-12872 20000728  
 PRAI US 1999-146337P P 19990730  
 US 1999-146605P P 19990730  
 US 1999-146862P P 19990803  
 WO 1999-US21442 A 19991008  
 WO 1999-US21443 A 19991008  
 US 2000-183562P P 20000218  
 US 2000-527034 A 20000316  
 US 2000-548379 A 20000412  
 US 2000-668916 A 20000511  
 US 2000-620523 A 20000720  
 US 1998-170566 A 19981013  
 US 1998-170578 A 19981013  
 US 1999-133075P P 19990507  
 US 1999-133076P P 19990507  
 US 2000-568916 A 20000511  
 WO 2000-US20457 W 20000728  
 AB **Coated fiber strand** comprises many  
 glass fibers having a resin compatible coating  
 compn. on at least a portion of a surface of .gtoreq.1 of the  
 glass fibers, the resin compatible coating  
 compn. comprising (a) lamellar, inorg. particles  
 having a Mohs' hardness value which does not exceed the  
 Mohs' hardness value of the glass fibers and (b) .gtoreq.1  
 polymeric material. The coated **fiber strand** is a  
 portion of fabric in a matrix material for manuf. of a reinforced laminate  
 for an electronic support. The resin compatible coating compn.  
 can also comprise (a) hollow, nonheat expandable org. particles and (b)  
 .gtoreq.1 lubricious material different from the .gtoreq.1 hollow org.  
 particle.  
 ST **coated glass fiber** textile laminate circuit  
 board; thermal conductor size glass fiber; abrasion resistance  
**coated glass fiber**  
 IT Coating materials  
   (abrasion-resistant; **coated glass fiber**  
   strands with abrasion resistance for **fiber-reinforced**  
   laminates for circuit boards)  
 IT Epoxy resins, uses  
 RL: POF (Polymer in formulation); TEM (Technical or engineered material  
 use); USES (Uses)  
   (acrylates; **coated glass fiber**  
   strands with abrasion resistance for **fiber-reinforced**  
   laminates for circuit boards)  
 IT **Fiber-reinforced composites**  
 Lubricants  
 Sizes (agents)  
 Textiles  
 Thermal conductors  
   (**coated glass fiber strands**)

- with abrasion resistance for **fiber-reinforced laminates for circuit boards**)
- IT **Glass fibers**, uses
  - RL: PEP (Physical, engineering or chemical process); PRP (Properties); TEM (Technical or engineered material use); PROC (Process); USES (Uses)  
**(coated glass fiber strands**  
with abrasion resistance for **fiber-reinforced laminates for circuit boards**)
- IT **Polyoxyalkylenes**, uses
  - RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)  
**(coated glass fiber strands**  
with abrasion resistance for **fiber-reinforced laminates for circuit boards**)
- IT **Acrylic polymers**, uses
  - Aminoplasts
  - Epoxy resins, uses
  - Polyamides, uses
  - Polycarbonates**, uses
  - Polyesters, uses
  - Polygermanes
  - Polyolefins
  - Polyphosphazenes
  - Polysilanes
  - Polysiloxanes, uses
  - Polyurethanes, uses
  - RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)  
**(coated glass fiber strands**  
with abrasion resistance for **fiber-reinforced laminates for circuit boards**)
- IT **Phenolic resins**, uses
  - RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)  
**(coated glass fiber strands**  
with abrasion resistance for **fiber-reinforced laminates for circuit boards**)
- IT **Borides**
  - Carbides
  - Carbonates**, uses
  - Chalcogenides
  - Hydroxides (inorganic)
  - Metals, uses
  - Nitrides
  - Oxides (inorganic), uses
  - Silicates, uses
  - Sulfides, uses
  - RL: TEM (Technical or engineered material use); USES (Uses)  
**(coated glass fiber strands**  
with abrasion resistance for **fiber-reinforced laminates for circuit boards**)
- IT **Linseed oil**
  - RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)  
**(epoxidized; coated glass fiber strands**  
with abrasion resistance for **fiber-reinforced laminates for circuit boards**)
- IT **Printed circuit boards**
  - (laminates; coated glass fiber strands**  
with abrasion resistance for **fiber-reinforced**

laminates for circuit boards)

IT Vinyl compounds, uses  
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)  
(polymers; **coated glass fiber**  
**strands** with abrasion resistance for **fiber-reinforced**  
laminates for circuit boards)

IT Coating materials  
(powder; **coated glass fiber**  
**strands** with abrasion resistance for **fiber-reinforced**  
laminates for circuit boards)

IT Plastics, uses  
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)  
(thermoplastics; **coated glass fiber**  
**strands** with abrasion resistance for **fiber-reinforced**  
laminates for circuit boards)

IT Plastics, uses  
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)  
(thermosetting; **coated glass fiber**  
**strands** with abrasion resistance for **fiber-reinforced**  
laminates for circuit boards)

IT Fats and Glyceridic oils, uses  
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)  
(vegetable, ethoxylated; **coated glass fiber**  
**strands** with abrasion resistance for **fiber-reinforced**  
laminates for circuit boards)

IT 9003-39-8, PVP K-30 24937-05-1, Desmophen 2000 25322-68-3, Polyox WSR  
301 63215-53-2, Bisphenol A-epichlorohydrin-tetrahydrophthalic anhydride  
copolymer 67185-58-4, Emery 6717 87209-95-8, Protolube HD  
91727-33-2, Euredur 140 107852-39-1, Emery 6760 115335-70-1  
202537-92-6, RoPaque HP-1055 217478-86-9, RD 847A 241811-13-2, Epi-Rez  
3522W66 285980-72-5, RoPaque OP-96 325459-20-9, Alubraspin 226  
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or  
engineered material use); USES (Uses)  
(**coated glass fiber strands**  
with abrasion resistance for **fiber-reinforced** laminates for  
circuit boards)

IT 919-30-2, A-1100 2530-83-8, A-187 2530-85-0, A-174 10043-11-5  
, Polartherm PT 120, uses  
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)  
(**coated glass fiber strands**  
with abrasion resistance for **fiber-reinforced** laminates for  
circuit boards)

RE.CNT 11 THERE ARE 11 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

(1) Hitachi Chem Co Ltd; JP 08309928 A 1996 HCPLUS  
(2) Inoguchi, H; US 5236777 A 1993  
(3) Lachasse, G; US 5217778 A 1993  
(4) Lawton, E; WO 0021899 A 2000 HCPLUS  
(5) Lawton, E; WO 0021900 A 2000 HCPLUS  
(6) Philipps, T; US 3312569 A 1967 HCPLUS  
(7) Ppg Ind Ohio Inc; WO 9944956 A 1999 HCPLUS  
(8) Ppg Ind Ohio Inc; WO 9944958 A 1999 HCPLUS  
(9) Ppg Ind Ohio Inc; WO 9944959 A 1999 HCPLUS  
(10) Ppg Industries Inc; WO 9639364 A 1996 HCPLUS  
(11) Teldix GmbH; WO 9001860 A 1990

IT 10043-11-5, Polartherm PT 120, uses  
 RL: PRP (Properties); TEM (Technical or engineered material use); USES  
 (Uses)  
 (coated glass fiber strands  
 with abrasion resistance for fiber-reinforced laminates for  
 circuit boards)  
 RN 10043-11-5 HCAPLUS  
 CN Boron nitride (BN) (8CI, 9CI) (CA INDEX NAME)

B=N

L54 ANSWER 17 OF 52 HCAPLUS COPYRIGHT 2003 ACS  
 AN 2001:101223 HCAPLUS  
 DN 134:164560  
 TI Impregnated glass fiber strands  
 and coated strand products  
 IN Novich, Bruce E.; Lammon-hilinski, Kami; Robertson, Walter J.; Wu, Xiang;  
Velpari, Vedagiri; Lawton, Ernest L.; Rice, William B.  
 PA Ppg Industries Ohio, Inc., USA  
 SO PCT Int. Appl., 161 pp.  
 CODEN: PIXXD2  
 DT Patent  
 LA English  
 IC ICM C08J005-08  
 ICS H05K001-03; C03C025-10  
 CC 42-10 (Coatings, Inks, and Related Products)  
 Section cross-reference(s): 38, 40  
 FAN.CNT 20

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI WO 2001009226	A1	20010208	WO 2000-US20539	20000728
W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
WO 2000021899	A1	20000420	WO 1999-US21442	19991008
W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
WO 2000021900	A1	20000420	WO 1999-US21443	19991008
W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				

RW: GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE,  
 DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF,  
 CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG  
 EP 1204698 A1 20020515 EP 2000-950817 20000728  
 R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,  
 IE, SI, LT, LV, FI, RO, MK, CY, AL

PRAI US 1999-146337P P 19990730  
 US 1999-146605P P 19990730  
 US 1999-146862P P 19990803  
 WO 1999-US21442 W 19991008  
 WO 1999-US21443 W 19991008  
 US 2000-183562P P 20000218  
 US 2000-527034 A 20000316  
 US 2000-548379 A 20000412  
 US 2000-668916 A 20000511  
 US 2000-620525 A 20000720  
 US 1998-170566 A 19981013  
 US 1998-170578 A 19981013  
 US 1999-133075P P 19990507  
 US 1999-133076P P 19990507  
 WO 2000-US20539 W 20000728

AB The partially coated **fiber strand** (for use in circuit board laminates) comprises many fibers, the coating (or size) comprising an org. component and lamellar particles having a thermal cond. .gtoreq.1 W/m K at 300K. The coating compn. further comprises (a) many discrete particles formed from materials selected from nonheat expandable org. materials, inorg. polymeric materials, nonheat expandable composite materials and mixts., the particles having an av. particle size sufficient to allow **strand** wet out, (b) .gtoreq.1 lubricants, and (c) .gtoreq.1 film-forming material. **Glass fibers** have a coating compn. comprising (a) many lamellar, inorg. particles having a Mohs' hardness value which does not exceed the Mohs' hardness value of the glass fibers and (b) .gtoreq.1 polymeric material.

ST coated **glass fiber** textile laminate circuit board; thermal conductor size glass fiber; abrasion resistance coated **glass fiber**

IT Coating materials  
 (abrasion-resistant; **coated glass fiber** strands with abrasion resistance for substrates for circuit boards)

IT Epoxy resins, uses  
 RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)  
 (acrylates; **coated glass fiber** strands with abrasion resistance for substrates for circuit boards)

IT Fiber-reinforced composites .  
 Lubricants  
 Sizes (agents)  
 Textiles  
 Thermal conductors  
 (**coated glass fiber strands** with abrasion resistance for substrates for circuit boards)

IT Glass fibers, uses  
 RL: PEP (Physical, engineering or chemical process); PRP (Properties); TEM (Technical or engineered material use); PROC (Process); USES (Uses)  
 (**coated glass fiber strands** with abrasion resistance for substrates for circuit boards)

IT Polyoxalkylenes, uses

RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)  
(coated glass fiber strands  
with abrasion resistance for substrates for circuit boards)

IT Acrylic polymers, uses  
Aminoplasts  
Epoxy resins, uses  
Polyamides, uses  
Polycarbonates, uses  
Polyesters, uses  
Polygermanes  
Polyolefins  
Polyphosphazenes  
Polysilanes  
Polysiloxanes, uses  
Polyurethanes, uses  
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)  
(coated glass fiber strands  
with abrasion resistance for substrates for circuit boards)

IT Borides  
Carbides  
Carbonates, uses  
Chalcogenides  
Hydroxides (inorganic)  
Metals, uses  
Nitrides  
Oxides (inorganic), uses  
Silicates, uses  
Sulfides, uses  
RL: TEM (Technical or engineered material use); USES (Uses)  
(coated glass fiber strands  
with abrasion resistance for substrates for circuit boards)

IT Linseed oil  
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)  
(epoxidized; coated glass fiber  
strands with abrasion resistance for substrates for circuit boards)

IT Printed circuit boards  
(laminates; coated glass fiber  
strands with abrasion resistance for substrates for circuit boards)

IT Grease (food-derived)  
(lubricant; coated glass fiber  
strands with abrasion resistance for substrates for circuit boards)

IT Waxes  
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)  
(lubricant; coated glass fiber  
strands with abrasion resistance for substrates for circuit boards)

IT Liquids  
(oils, lubricant; coated glass fiber  
strands with abrasion resistance for substrates for circuit boards)

IT Vinyl compounds, uses  
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)

(polymers; **coated glass fiber**  
strands with abrasion resistance for substrates for circuit  
boards)

IT Coating materials  
(powder; **coated glass fiber**  
strands with abrasion resistance for substrates for circuit  
boards)

IT Plastics, uses  
RL: POF (Polymer in formulation); TEM (Technical or engineered material  
use); USES (Uses)  
(thermoplastics; **coated glass fiber**  
strands with abrasion resistance for substrates for circuit  
boards)

IT Plastics, uses  
RL: POF (Polymer in formulation); TEM (Technical or engineered material  
use); USES (Uses)  
(thermosetting; **coated glass fiber**  
strands with abrasion resistance for substrates for circuit  
boards)

IT Fats and Glyceridic oils, uses  
RL: PRP (Properties); TEM (Technical or engineered material use); USES  
(Uses)  
(vegetable, ethoxylated; **coated glass fiber**  
strands with abrasion resistance for substrates for circuit  
boards)

IT 9003-39-8, PVP K-30 24937-05-1, Desmophen 2000 25322-68-3, Polyox WSR  
301 63215-53-2, Bisphenol A-epichlorohydrin-tetrahydrophthalic anhydride  
copolymer 67185-58-4, Emery 6717 87209-95-8, Protolube HD  
91727-33-2, Euredur 140 107852-39-1, Emery 6760 115335-70-1  
202537-92-6, RoPaque HP-1055 217478-86-9, RD 847A 241811-13-2, Epi-Rez  
3522W66 285980-72-5, RoPaque OP-96 325459-20-9, Alubraspin 226  
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or  
engineered material use); USES (Uses)  
(**coated glass fiber strands**  
with abrasion resistance for substrates for circuit boards)

IT 919-30-2, A-1100 2530-83-8, A-187 2530-85-0, A-174 **10043-11-5**  
, Polartherm PT 120, uses  
RL: PRP (Properties); TEM (Technical or engineered material use); USES  
(Uses)  
(**coated glass fiber strands**  
with abrasion resistance for substrates for circuit boards)

IT **1317-33-5, Molybdenum disulfide**, uses  
7782-42-5, Graphite, uses 12039-55-3, Tantalum diselenide  
12058-18-3, Molybdenum diselenide 12067-46-8, Tungsten diselenide  
12138-09-9, Tungsten disulfide 12143-72-5, Tantalum disulfide  
RL: TEM (Technical or engineered material use); USES (Uses)  
(**coated glass fiber strands**  
with abrasion resistance for substrates for circuit boards)

RE.CNT 14 THERE ARE 14 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

- (1) Anon; JP 02-160944 A 1990, V014(423), PC-0757
- (2) Hitachi Chem Co Ltd; JP 08309928 A 1996 HCPLUS
- (3) Lachasse, G; US 5217778 A 1993
- (4) Lawton, E; WO 0021899 A 2000 HCPLUS
- (5) Lawton, E; WO 0021900 A 2000 HCPLUS
- (6) Matsushita Electric Works Ltd; JP 09118759 A 1997 HCPLUS
- (7) Novich, B; Circuitree 1999, V12(3), P44
- (8) Novich, B; Print Circuit FABR 1999, V22(4), P52
- (9) Philipps, T; US 3312569 A 1967 HCPLUS
- (10) Ppg Ind Ohio Inc; WO 9944956 A 1999 HCPLUS

(11) Ppg Ind Ohio Inc; WO 9944958 A 1999 HCPLUS  
 (12) Ppg Ind Ohio Inc; WO 9944959 A 1999 HCPLUS  
 (13) Ppg Industries Inc; WO 9639364 A 1996 HCPLUS  
 (14) Taizou, S; US 5733823 A 1998 HCPLUS  
 IT 10043-11-5, Polartherm PT 120, uses  
 RL: PRP (Properties); TEM (Technical or engineered material use); USES  
 (Uses)  
 (coated glass fiber strands  
 with abrasion resistance for substrates for circuit boards)  
 RN 10043-11-5 HCPLUS  
 CN Boron nitride (BN) (8CI, 9CI) (CA INDEX NAME)

B≡N

IT 1317-33-5, Molybdenum disulfide, uses  
 RL: TEM (Technical or engineered material use); USES (Uses)  
 (coated glass fiber strands  
 with abrasion resistance for substrates for circuit boards)  
 RN 1317-33-5 HCPLUS  
 CN Molybdenum sulfide (MoS<sub>2</sub>) (8CI, 9CI) (CA INDEX NAME)

S≡Mo≡S

L54 ANSWER 18 OF 52 WPIX (C) 2003 THOMSON DERWENT  
 AN 2002-049008 [06] WPIX  
 CR 1999-551017 [46]; 1999-551018 [46]; 1999-551019 [46]; 1999-551020 [46];  
 1999-551021 [46]; 1999-551022 [46]; 2000-350122 [30]; 2000-364682 [31];  
 2001-244130 [25]; 2001-257406 [26]; 2001-257524 [26]; 2001-389548 [41];  
 2002-017346 [02]; 2002-034088 [04]; 2002-034089 [04]; 2002-041186 [05];  
 2002-041187 [05]; 2002-041188 [05]; 2002-049009 [06]; 2002-689464 [74];  
 2002-730929 [79]; 2003-015741 [01]  
 DNN N2002-036303 DNC C2002-013638  
 TI Partially or completely coated fiber strand for printed circuit  
 board, has fibers having primary coating of preset sizing compositions,  
 and secondary coating containing organic component(s) and lamellar  
 particles.  
 DC A85 F01 G02 L01 L03 V04  
 IN LAMMON-HILINSKI, K; LAWTON, E L; NOVICH, B E; RICE, W B; ROBERTSON, W J;  
VELPARI, V; WU, X  
 PA (PITT) PPG IND OHIO INC  
 CYC 93  
 PI WO 2001068751 A1 20010920 (200206)\* EN 166p C08J005-08 <--  
 RW: AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW MZ  
 NL OA PT SD SE SL SZ TR TZ UG ZW  
 W: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CR CU CZ DE DK DM  
 DZ EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC  
 LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PL PT RO RU SD SE  
 SG SI SK SL TJ TM TR TT TZ UA UG UZ VN YU ZA ZW  
 AU 2001052916 A 20010924 (200208) C08J005-08 <--  
 ADT WO 2001068751 A1 WO 2001-US8550 20010316; AU 2001052916 A AU 2001-52916  
 20010316  
 FDT AU 2001052916 A Based on WO 200168751  
 PRAI US 2000-706253 20001103; US 2000-527034 20000316; US 2000-548379  
 20000412; US 2000-568916 20000511; US 2000-620523 20000720; US  
 2000-620524 20000720; US 2000-620525 20000720; US 2000-620526

20000720

IC ICM C08J005-08

ICS C03C025-00; C03C025-10; H05K001-03

AB WO 200168751 A UPAB: 20030101

**NOVELTY** - The partially or completely coated fiber **strand** (10) has a primary coating of one or more sizing compositions on at least a portion of surface (16) of one or more fiber (12). Secondary coating is provided on at least a portion of primary coating. Secondary coating composition comprises one or more organic components and lamellar particles with thermal conductivity of at least 1 Watt/m K at 300K.

**DETAILED DESCRIPTION** - An INDEPENDENT CLAIM is also included for the fiber comprising a coating containing one or more organic components and lamellar particles having a thermal conductivity of at least 1 Watt/mK at 300 K.

**USE** - For printed circuit board, electronic circuit board, air jet weaving. For reinforced composite used for packaging in electronic industries. For use as warp and/or weft **strand** in a knit or woven fabric. The coated fiber **strands** are generally used for reinforcing composites and, more specifically, to coated fiber **strands** that are compatible with a matrix material that the **strands** are incorporated into.

**ADVANTAGE** - The coated fiber **strands** inhibits abrasion and breakage of fibers during processing. The reinforced composite exhibits excellent wet-through, wet-out, dispersion properties, laminate strength, thermal stability, hydrolytic stability and low corrosion. The composite is reactive in presence of high humidity, reactive acid and alkali, and is compatible with variety of polymeric matrix materials. The coated fiber **strands** have excellent processability in weaving and knitting, low fuzz and halos, low broken filaments, low **strand** tension and low insertion time. The coating facilitates thermal conduction along coated surface. The **coated glass**

**fibers** promote heat dissipation from heat source along the reinforcement to conduct heat away from electronic components and thereby inhibit thermal degradation and/or deterioration of circuit components, **glass fibers** and polymeric matrix materials. The **coated glass fibers** provide higher thermal conductivity phase than the matrix material i.e., a preferential path for heat dissipation and distribution, thereby reducing differential thermal expansion and warpage of electronic circuit board and improving solder joint reliability. The **coated glass fiber** **strands** lessen or eliminate the need for incorporating thermally conductive materials in the resin which improves laminate manufacturing operations and lowers costly matrix material supply tank purging and maintenance. Production cycle time, fabric handling and labor cost are reduced. Quality of fabric is improved.

**DESCRIPTION OF DRAWING(S)** - The figure shows a perspective view of the coated fiber **strand**.

Fiber **strand** 10

Fibers 12

Surface 16

Dwg.1/13

FS CPI EPI

FA AB; GI

MC CPI: A11-B09A1; A12-E07A; A12-S08B; A12-S08D2; F01-D09B; F03-D04;  
G02-A05B; L01-F03A; L01-F03D; L01-L04; L03-H04E1

EPI: V04-R07L; V04-X01B

L54 ANSWER 19 OF 52 WPIX (C) 2003 THOMSON DERWENT

AN 2002-041186 [05] WPIX

CR 1999-551017 [46]; 1999-551018 [46]; 1999-551019 [46]; 1999-551020 [46];

1999-551021 [46]; 1999-551022 [46]; 2000-350122 [30]; 2000-364682 [31];  
 2001-244130 [25]; 2001-257406 [26]; 2001-257524 [26]; 2001-389548 [41];  
 2002-017346 [02]; 2002-034088 [04]; 2002-034089 [04]; 2002-041187 [05];  
 2002-041188 [05]; 2002-049008 [06]; 2002-049009 [06]; 2002-689464 [74];  
 2002-730929 [79]; 2003-015741 [01]

DNN N2002-030625 DNC C2002-011595

TI Reinforced composite for, e.g., printed circuit board comprises partially coated fiber **strand(s)** comprising fibers coated with lamellar particles, and matrix material.

DC A85 F01 G02 L01 L03 V04 X12

IN LAMMON-HILINSKI, K; LAWTON, E L; NOVICH, B E; RICE, W B; ROBERTSON, W J;  
 VELPARI, V; WU, X

PA (PITT) PPG IND OHIO INC

CYC 93

PI WO 2001068750 A1 20010920 (200205)\* EN 165p C08J005-08 <--  
 RW: AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW MZ  
 NL OA PT SD SE SL SZ TR TZ UG ZW  
 W: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CR CU CZ DE DK DM  
 DZ EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC  
 LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PL PT RO RU SD SE  
 SG SI SK SL TJ TM TR TT TZ UA UG UZ VN YU ZA ZW  
 AU 2001052915 A 20010924 (200208) C08J005-08 <--

ADT WO 2001068750 A1 WO 2001-US8549 20010316; AU 2001052915 A AU 2001-52915  
 20010316

FDT AU 2001052915 A Based on WO 200168750

PRAI US 2000-705354 20001103; US 2000-527034 20000316; US 2000-548379  
 20000412; US 2000-568916 20000511; US 2000-620523 20000720; US  
 2000-620524 20000720; US 2000-620525 20000720; US 2000-620526  
 20000720

IC ICM C08J005-08

ICS C03C025-10; H05K001-03

AB WO 200168750 A UPAB: 20030101

NOVELTY - The reinforced composite comprises at least one partially coated fiber **strand** (10) and at least one matrix material. The coated fiber **strand** comprises several fibers (12) and the **strand** is coated with lamellar particles.

USE - For printed circuit board, electronic circuit board, air jet weaving. The reinforced composite is used for packaging in electronic industries.

ADVANTAGE - The coated fiber **strands** inhibits abrasion and breakage of fibers during processing. The reinforced composite exhibits excellent wet-through, wet-out, dispersion properties, laminate strength, thermal stability, hydrolytic stability, low corrosion and is reactive in presence of high humidity, reactive acids and alkalies and compatibility with variety of polymeric matrix materials. The coated fiber **strands** have excellent processability in weaving and knitting, low fuzz and halos, low broken filaments, low **strand** tension, high fliability and low insertion time. The coating on the fiber **strands** facilitate thermal conduction along **coated** surfaces of **fibers**. The **coated glass** **fibers** promote heat dissipation from heat source along the reinforcement to conduct heat away from electronic components and thereby inhibit thermal degradation and/or deterioration of circuit components, **glass fibers** and polymeric matrix materials. The **coated glass fibers** provide reduction in differential thermal expansion and warpage of electronic circuit board and improve solder joint reliability. Production cycle time, fabric handling and labor cost are reduced. Fabric quality is improved.

DESCRIPTION OF DRAWING(S) - The figure shows perspective view of coated fiber **strand**.

Fiber strand 10  
 Fibers 12  
 Dwg.1/13  
 FS CPI EPI  
 FA AB; GI  
 MC CPI: A08-R; A11-B09A1; A12-E07; A12-S08B; A12-S08D2; F01-D09B; F03-D;  
     F04-E; G02-A02G; G02-A05B; L01-F03A; L01-F03D; L01-L04; L03-H04E1  
     EPI: V04-R07L; V04-X01B; X12-E02B

L54 ANSWER 20 OF 52 WPIX (C) 2003 THOMSON DERWENT  
 AN 2002-034089 [04] WPIX  
 CR 1999-551017 [46]; 1999-551018 [46]; 1999-551019 [46]; 1999-551020 [46];  
     1999-551021 [46]; 1999-551022 [46]; 2000-350122 [30]; 2000-364682 [31];  
     2001-244130 [25]; 2001-257406 [26]; 2001-257524 [26]; 2001-389548 [41];  
     2002-017346 [02]; 2002-034088 [04]; 2002-041186 [05]; 2002-041187 [05];  
     2002-041188 [05]; 2002-049008 [06]; 2002-049009 [06]; 2002-689464 [74];  
     2002-730929 [79]; 2003-015741 [01]

DNN N2002-026280 DNC C2002-009456

TI Partially coated fabric for electronic applications comprises one or more  
 coated fiber strand comprising fibers, with coating comprising  
 organic components and lamellar particles having specific thermal  
 conductivity.

DC A85 F01 G02 L03 V04 X12

IN LAMMON-HILINSKI, K; LAWTON, E L; NOVICH, B E; RICE, W B; ROBERTSON, W J;  
 VELPARI, V; WU, X

PA (PITT) PPG IND OHIO INC

CYC 93

PI WO 2001068749 A1 20010920 (200204)\* EN 166p C08J005-08 <--  
 RW: AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW MZ  
 NL OA PT SD SE SL SZ TR TZ UG ZW  
 W: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CR CU CZ DE DK DM  
 DZ EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC  
 LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PL PT RO RU SD SE  
 SG SI SK SL TJ TM TR TT TZ UA UG UZ VN YU ZA ZW  
 AU 2001047491 A 20010924 (200208) C08J005-08 <--  
 ADT WO 2001068749 A1 WO 2001-US8474 20010316; AU 2001047491 A AU 2001-47491  
 20010316

FDT AU 2001047491 A Based on WO 200168749

PRAI US 2000-705574 20001103; US 2000-527034 20000316; US 2000-548379  
 20000412; US 2000-568916 20000511; US 2000-620523 20000720; US  
 2000-620524 20000720; US 2000-620525 20000720; US 2000-620526  
 20000720

IC ICM C08J005-08  
 ICS C03C025-10; H05K001-03

AB WO 200168749 A UPAB: 20030101  
 NOVELTY - An at least partially coated fabric comprises at least one  
 coated fiber strand (10) which comprises plurality of fibers  
 (12). The coating comprises organic component(s) and lamellar particles  
 (18) having a thermal conductivity of at least 1 Watt/m deg. K at 300 deg.  
 K.  
 USE - The method is used for forming reinforced composites and  
 laminates for electronic support of electronic circuit board and laminated  
 printed circuit boards. Also useful on air-jet looms and for other  
 packaging.

ADVANTAGE - The fiber strands have unique coating that  
 preferably inhibits abrasion and breakage of fibers during processing and  
 also provides good wet-through, wet-out and dispersion properties in  
 formation of composites. Laminate with low coefficient of thermal  
 expansion, good flexural strength, good inter-laminar bond strength,  
 thermal stability, low corrosion and low reactivity in presence of high

humidity, reactive acids and alkalis, and compatibility with variety of polymeric matrix material, is obtained. Hence the need for removing the coating and heat or pressurized water cleaning, prior to lamination can be avoided. The fiber **strands** provides good processability in weaving and knitting and have low fuzz, halos, low broken filaments, low **strand** tension, high fliability, low insertion time and fabric with reduced surface defects. As the fiber has unique coating that facilitates thermal conduction, heat dissipation from the heat source along the reinforcement to conduct heat away from the electronic components, in electronic circuit board, is promoted. Thereby, thermal degradation and/or deterioration of circuit components, glass fiber and polymeric matrix material is inhibited. The coated fiber provides high thermal conductivity than matrix material, thereby reducing differential thermal expansion and warpage of electronic circuit board and improving solder joint reliability. The fiber eliminates or lessens the need for incorporating thermally conductive material in the matrix resin, as a result improving laminate manufacturing operations and lowering costly matrix material supply tank and maintenance. The fiber **strands** have high **strand** openness which facilitates penetration or wet-out of matrix material into the **strand** bundles. Electronic supports and printed circuit boards with good drillability and resistance to metal migration can be obtained. The fiber enables reduction of production cycle time, eliminates capital equipment, reduces fabric handling and labor cost, improves fabric quality and final product properties.

**DESCRIPTION OF DRAWING(S)** - The figure shows perspective view of coated fiber **strand** at least partially coated with coating composition.

Fiber **strand** 10

Fibers 12

Lamellar particles 18

Dwg.1/13

FS CPI EPI

FA AB; GI

MC CPI: A08-M03A; A12-E01; A12-S08B; A12-S08D2; F03-E01; F04-E; G02-A05;  
L03-H04E1

EPI: V04-Q05; V04-R07L; V04-R07P; X12-E01X

L54 ANSWER 21 OF 52 HCPLUS COPYRIGHT 2003 ACS DUPLICATE 9

AN 2000:260196 HCPLUS

DN 132:297428

TI **Impregnated glass fiber strands**

and products including the same

IN Lawton, Ernest L.; Wu, Xiang; Rice, William B.; Novich, Bruce E.

PA PPG Industries Ohio, Inc., USA

SO PCT Int. Appl., 89 pp.

CODEN: PIXXD2

DT Patent

LA English

IC ICM C03C025-02

ICS C08J005-08; H05K001-03

CC 57-1 (Ceramics)

Section cross-reference(s): 38, 40

FAN.CNT 20

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2000021899	A1	20000420	WO 1999-US21442	19991008
	W:	AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN,			

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 TR, TT, UA, UG, US, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU,  
 TJ, TM  
 RW: GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE,  
 DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF,  
 CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG  
 CA 2346027 AA 20000420 CA 1999-2346027 19991008  
 AU 9964975 A1 20000501 AU 1999-64975 19991008  
 EP 1124769 A1 20010822 EP 1999-952920 19991008  
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 JP 2002527333 T2 20020827 JP 2000-575810 19991008  
 US 6419981 B1 20020716 US 2000-620524 20000720  
 WO 2001009054 A1 20010208 WO 2000-US20459 20000728  
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 WO 2001009226 A1 20010208 WO 2000-US20539 20000728  
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 WO 2001012701 A1 20010222 WO 2000-US20457 20000728  
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 WO 2001012702 A1 20010222 WO 2000-US20523 20000728  
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 CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG  
 EP 1204613 A1 20020515 EP 2000-948977 20000728  
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 EP 1204696 A1 20020515 EP 2000-950780 20000728  
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 EP 1204697 A1 20020515 EP 2000-950805 20000728

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AB A coated fiber **strand** comprising at least one fiber having a layer of a dried residue of a resin compatible coating compn. on at least a portion of a surface of the at least one fiber, the resin compatible coating compn. comprising: (a) a plurality of discrete, dimensionally stable particles formed from materials selected from the group consisting of org. materials, polymeric materials, composite materials and mixts. thereof that provide an interstitial space between the at least one fiber and at least one adjacent fiber, the particles having an av. particle size of .apprx.0.1- 5 .mu.m; (b) at least one lubricious material; (c) at least one polymeric film former; and (d) at least one coupling agent, and a fabric incorporating at least one of the fiber **strands**. The fiber **strand** has at least an inorg. fiber from a glass material.

ST **glass fiber strand fiber**

**coating compn**

IT **Coating materials**

**Coupling agents**

**Lubricants**

(**glass fiber strands** comprising  
**fibers coated** with compns. contg. particles and  
 lubricants and polymer film former and coupling agent)

IT **Glass fibers, processes**  
RL: PEP (Physical, engineering or chemical process); PRP (Properties); TEM (Technical or engineered material use); PROC (Process); USES (Uses)  
(**glass fiber strands** comprising  
**fibers coated** with compns. contg. particles and  
lubricants and polymer film former and coupling agent)

IT **Epoxy resins, uses**  
RL: TEM (Technical or engineered material use); USES (Uses)  
(**glass fiber strands** comprising  
**fibers coated** with compns. contg. particles and  
lubricants and polymer film former and coupling agent)

IT **Textiles**  
(**glass fiber strands** comprising  
**fibers coated** with compns. contg. particles and  
lubricants and polymer film former and coupling agent for)

IT **Grease (food-derived)**  
(lubricant; **glass fiber strands**  
comprising **fibers coated** with compns. contg.  
particles and lubricants and polymer film former and coupling agent)

IT **Paraffin waxes, uses**  
Waxes  
RL: TEM (Technical or engineered material use); USES (Uses)  
(lubricant; **glass fiber strands**  
comprising **fibers coated** with compns. contg.  
particles and lubricants and polymer film former and coupling agent)

IT **Liquids**  
(oils, lubricant; **glass fiber strands**  
comprising **fibers coated** with compns. contg.  
particles and lubricants and polymer film former and coupling agent)

IT **Materials**  
(org., particles from; **glass fiber strands**  
comprising **fibers coated** with compns. contg.  
particles and lubricants and polymer film former and coupling agent)

IT **Composites**  
(particles from; **glass fiber strands**  
comprising **fibers coated** with compns. contg.  
particles and lubricants and polymer film former and coupling agent)

IT **Acrylic polymers, uses**  
Borides  
Carbides  
Carbonates, uses  
Chalcogenides  
Metals, uses  
Nitrides  
Oxides (**inorganic**), uses  
Polyamides, uses  
Polyesters, uses  
Polymers, uses  
Polyolefins  
Polyurethanes, uses  
Silicates, uses  
Sulfides, uses  
RL: TEM (Technical or engineered material use); USES (Uses)  
(**particles from; glass fiber**  
**strands** comprising **fibers coated** with  
compns. contg. particles and lubricants and **polymer** film  
former and coupling agent)

IT **Vinyl compounds, uses**  
RL: TEM (Technical or engineered material use); USES (Uses)  
(**polymers, particles from; glass fiber**

strands comprising fibers coated with  
compns. contg. particles and lubricants and polymer film former and  
coupling agent)

IT Plastics, uses  
RL: TEM (Technical or engineered material use); USES (Uses)  
(thermoplastics, particles from; **glass fiber**  
strands comprising fibers coated with  
compns. contg. particles and lubricants and polymer film former and  
coupling agent)

IT Plastics, uses  
RL: TEM (Technical or engineered material use); USES (Uses)  
(thermosetting, particles from; **glass fiber**  
strands comprising fibers coated with  
compns. contg. particles and lubricants and polymer film former and  
coupling agent)

IT 9002-89-5, Polyvinyl alcohol 9003-01-4, **Polyacrylic acid**  
9003-05-8, **Polyacrylamide**  
RL: TEM (Technical or engineered material use); USES (Uses)  
(film former; **glass fiber strands**  
comprising fibers coated with compns. contg.  
particles and lubricants and **polymer** film former and coupling  
agent)

IT 540-10-3, Cetyl palmitate 2530-83-8 9003-39-8, PVP K-30  
**10043-11-5, Boron nitride (BN), uses**  
67185-58-4, Emery 6717  
RL: TEM (Technical or engineered material use); USES (Uses)  
(**glass fiber strands** comprising  
fibers coated with compns. contg. particles and  
lubricants and polymer film former and coupling agent)

IT 2598-99-4, Octadecyl palmitate 2778-96-3, Octadecyl stearate  
3234-81-9, Octadecyl myristate 3234-84-2, Octadecyl laurate 20834-06-4  
RL: TEM (Technical or engineered material use); USES (Uses)  
(lubricant; **glass fiber strands**  
comprising fibers coated with compns. contg.  
particles and lubricants and polymer film former and coupling agent)

IT 7782-42-5, Graphite, uses 25085-34-1, **Acrylic**  
acid-styrene copolymer  
RL: TEM (Technical or engineered material use); USES (Uses)  
(particles from; **glass fiber strands**  
comprising fibers coated with compns. contg.  
particles and lubricants and **polymer** film former and coupling  
agent)

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circuit boards
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 IT 10043-11-5, Boron nitride (BN), uses  
 RL: TEM (Technical or engineered material use); USES (Uses)  
 (glass fiber strands comprising  
 fibers coated with compns. contg. particles and  
 lubricants and polymer film former and coupling agent)  
 RN 10043-11-5 HCPLUS  
 CN Boron nitride (BN) (8CI, 9CI) (CA INDEX NAME)

B=N

L54 ANSWER 22 OF 52 HCPLUS COPYRIGHT 2003 ACS  
 AN 2000:260198 HCPLUS  
 DN 132:266274  
 TI Glass fiber-reinforced prepregs, laminates, electronic circuit boards and methods for assembling a fabric  
 IN Novich, Bruce E.; Robertson, Walter J.; Velpari, Vedagiri;  
 Lammon-Hilinski, Kami; Lawton, Ernest L.  
 PA PPG Industries Ohio, Inc., USA  
 SO PCT Int. Appl., 87 pp.  
 CODEN: PIXXD2  
 DT Patent  
 LA English  
 IC ICM C03C025-10  
 ICS C08J005-08; H05K001-03  
 CC 38-3 (Plastics Fabrication and Uses)  
 Section cross-reference(s): 76  
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PI	WO 2000021900	A1	20000420	WO 1999-US21443	19991008
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	CA 2346111	AA	20000420	CA 1999-2346111	19991008
	AU 9963914	A1	20000501	AU 1999-63914	19991008
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	US 6419981	B1	20020716	US 2000-620524	20000720
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WO 2001009226 A1 20010208 WO 2000-US20539 20000728

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SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ,  
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WO 2000-US20523	W	20000728
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US 2000-233460P	P	20000918

AB One aspect of the present invention is a prepreg for an electronic support, the prepreg comprising: (a) a polymeric matrix material; and (b) a fabric comprising a **strand** comprising glass fibers, at least a portion of the fabric having a coating which is compatible with the polymeric matrix material, the prepreg having a drill tip percent wear of no greater than about 32 percent, as detd. after drilling 2000 holes through a stack of 3 laminates, each laminate including eight of the prepgs, at a hole d. of 62 holes per square centimeter (400 holes per square inch) and a chip load of 0.001 with a 0.46 mm (0.018 in.) diam. tungsten carbide drill. The present invention also provides a laminate incorporating the prepreg. Another aspect of the present invention is a prepreg for an electronic support, the prepreg comprising: (a) a polymeric matrix material; and (b) a woven reinforcement fabric comprising glass fibers, at least a portion of the fabric having a coating which is compatible with the polymeric matrix material, the prepreg having a deviation distance of no greater than about 36 .mu.m, as detd. after drilling 2000 holes through a stack of 3 laminates at a hole d. of 62 holes per square centimeter (400 holes per square inch) and a chip load of 0.001 with a 0.46 mm (0.018 in.) diam. tungsten carbide drill. The present invention also provides a laminate incorporating the prepreg.

ST glass fiber prepreg elec circuit board; drill wear glass fiber prepreg

IT Epoxy resins, uses  
 RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)  
 (acrylates; glass fiber-reinforced prepgs, laminates, electronic circuit boards and methods for assembling a fabric)

IT Polysulfones, uses  
 RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)  
 (arom.; glass fiber-reinforced prepgs, laminates, electronic circuit boards and methods for assembling a fabric)

IT Lubricants  
 (coating; glass fiber-reinforced prepgs, laminates, electronic circuit boards and methods for assembling a fabric)

IT Acrylic polymers, uses  
 Alkanes, uses  
 RL: TEM (Technical or engineered material use); USES (Uses)  
 (coating; glass fiber-reinforced prepgs, laminates, electronic circuit boards and methods for assembling a fabric)

IT Glass fibers, uses  
 RL: TEM (Technical or engineered material use); USES (Uses)  
 (fabrics)

IT Aminoplasts  
Epoxy resins, uses  
Phenolic resins, uses  
Polyamides, uses  
**Polycarbonates**, uses  
Polyesters, uses  
Polyimides, uses  
Polyolefins  
Polyoxymethylenes, uses  
Polyoxyphenylenes  
Polythiophenylenes  
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)  
(glass fiber-reinforced preprints, laminates, electronic circuit boards and methods for assembling a fabric)

IT Chalcogenides  
RL: TEM (Technical or engineered material use); USES (Uses)  
(metal; glass fiber-reinforced preprints, laminates, electronic circuit boards and methods for assembling a fabric)

IT Polyketones  
Polyketones  
Polysulfones, uses  
Polysulfones, uses  
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)  
(polyether-; glass fiber-reinforced preprints, laminates, electronic circuit boards and methods for assembling a fabric)

IT Polyethers, uses  
Polyethers, uses  
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)  
(polyketone-; glass fiber-reinforced preprints, laminates, electronic circuit boards and methods for assembling a fabric)

IT Polyethers, uses  
Polyethers, uses  
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)  
(polysulfone-; glass fiber-reinforced preprints, laminates, electronic circuit boards and methods for assembling a fabric)

IT Reinforced plastics  
RL: TEM (Technical or engineered material use); USES (Uses)  
(preprints; glass fiber-reinforced preprints, laminates, electronic circuit boards and methods for assembling a fabric)

IT Printed circuit boards  
(support; glass fiber-reinforced preprints, laminates, electronic circuit boards and methods for assembling a fabric)

IT Polyurethanes, uses  
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)  
(thermoplastic; glass fiber-reinforced preprints, laminates, electronic circuit boards and methods for assembling a fabric)

IT Polyurethanes, uses  
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)  
(thermosetting; glass fiber-reinforced preprints, laminates, electronic circuit boards and methods for assembling a fabric)

IT Polyesters, uses  
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)  
(unsatd.; glass fiber-reinforced preprints, laminates, electronic

circuit boards and methods for assembling a fabric)

IT 540-10-3, Cetyl palmitate 2598-99-4, Octadecyl palmitate 2778-96-3,  
Octadecyl stearate 3234-81-9, Octadecyl myristate 3234-84-2, Octadecyl  
laurate 20834-06-4, Hexadecyl laurate

RL: TEM (Technical or engineered material use); USES (Uses)  
(coating; glass fiber-reinforced  
prepregs, laminates, electronic circuit boards and methods for  
assembling a fabric)

IT 9003-39-8, PVP K-30 12624-35-0, VERSAMID 140 24937-05-1, DESMOPHEN  
2000 106392-12-5, PLURONIC F-108 202537-92-6, ROPAQUE HP-1055  
217478-86-9, RD-847A

RL: POF (Polymer in formulation); TEM (Technical or engineered material  
use); USES (Uses)  
(glass fiber-reinforced prepregs, laminates, electronic circuit boards  
and methods for assembling a fabric)

IT 471-34-1, Calcium carbonate, uses  
1314-13-2, Zinc oxide, uses 1317-33-5  
, Molybdenum disulfide, uses 7440-22-4,  
Silver, uses 7440-28-0, Thallium, uses 7440-31-5, Tin, uses  
7440-50-8, Copper, uses 7440-57-5,  
Gold, uses 7440-66-6, Zinc, uses 7440-74-6, Indium, uses  
7782-42-5, Graphite, uses 7789-75-5, Calcium  
fluoride, uses 7790-80-9, Cadmium iodide 10043-11-5,  
Boron nitride (BN), uses 12039-55-3,  
Tantalum diselenide 12058-18-3, Molybdenum diselenide 12067-46-8,  
Tungsten diselenide 12138-09-9, Tungsten disulfide 12143-72-5,  
Tantalum disulfide 21548-73-2, Silver sulfide

RL: TEM (Technical or engineered material use); USES (Uses)  
(glass fiber-reinforced prepregs, laminates, electronic circuit boards  
and methods for assembling a fabric)

RE.CNT 14 THERE ARE 14 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

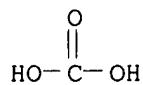
(1) Allied Signal Inc; WO 9735457 A 1997 HCPLUS  
(2) Anon; CIRCUITREE V12(3), P44  
(3) Derwent Publications Ltd; DATABASE WPI  
(4) Hitachi Chem Co Ltd; JP 08309928 A 1996 HCPLUS  
(5) Inoguchi, H; US 5236777 A 1993  
(6) Institute Of Electrical Engineers; DATABASE INSPEC  
(7) Komori, K; US 5284807 A 1994 HCPLUS  
(8) Lachasse, G; US 5217778 A 1993  
(9) Mitsubishi Gas Chemical Co; EP 0468476 A 1992 HCPLUS  
(10) Novich, B; Hybon RCY yarns:a laminate reinforcement developed for printed  
circuit boards  
(11) Philipps, T; US 3312569 A 1967 HCPLUS  
(12) Ppg Industries Inc; WO 9639364 A 1996 HCPLUS  
(13) Teldix GmbH; WO 9001860 A 1990  
(14) Yamanaka, H; US 5593767 A 1997

IT 471-34-1, Calcium carbonate, uses  
1314-13-2, Zinc oxide, uses 1317-33-5  
, Molybdenum disulfide, uses 7440-22-4,  
Silver, uses 7440-50-8, Copper, uses  
7440-57-5, Gold, uses 7789-75-5,  
Calcium fluoride, uses 10043-11-5,  
Boron nitride (BN), uses

RL: TEM (Technical or engineered material use); USES (Uses)  
(glass fiber-reinforced prepregs, laminates, electronic circuit boards  
and methods for assembling a fabric)

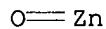
RN 471-34-1 HCPLUS

CN Carbonic acid calcium salt (1:1) (8CI, 9CI) (CA INDEX NAME)



Ca

RN 1314-13-2 HCAPLUS  
CN Zinc oxide (ZnO) (9CI) (CA INDEX NAME)



RN 1317-33-5 HCAPLUS  
CN Molybdenum sulfide (MoS<sub>2</sub>) (8CI, 9CI) (CA INDEX NAME)



RN 7440-22-4 HCAPLUS  
CN Silver (8CI, 9CI) (CA INDEX NAME)

Ag

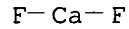
RN 7440-50-8 HCAPLUS  
CN Copper (7CI, 8CI, 9CI) (CA INDEX NAME)

Cu

RN 7440-57-5 HCAPLUS  
CN Gold (8CI, 9CI) (CA INDEX NAME)

Au

RN 7789-75-5 HCAPLUS  
CN Calcium fluoride (CaF<sub>2</sub>) (9CI) (CA INDEX NAME)



RN 10043-11-5 HCAPLUS  
CN Boron nitride (BN) (8CI, 9CI) (CA INDEX NAME)



L54 ANSWER 23 OF 52 HCAPLUS COPYRIGHT 2003 ACS  
 AN 2000:454311 HCAPLUS  
 DN 133:75436  
 TI Fire-retardant intumescent coating composition  
 IN Liu, Feipeng  
 PA J.M. Huber Corporation, USA  
 SO U.S., 10 pp., Cont.-in-part of U.S. 5,968,669.  
 CODEN: USXXAM  
 DT Patent  
 LA English  
 IC ICM C08K021-14  
 ICS C08J009-32; C08J009-00  
 NCL 523179000  
 CC 42-10 (Coatings, Inks, and Related Products)  
 FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 6084008	A	20000704	US 1999-354404	19990715
	US 5968669	A	19991019	US 1998-102927	19980623
PRAI	US 1998-102927	A2	19980623		

AB A title compn. comprises expandable **graphite** particles, a solid absorbent material such as limestone or **CACO<sub>3</sub>**, a polymeric binder such as phenol-formaldehyde resin, preferably a carbonific material such as pentaerythritol, preferably a blowing agent such as urea, a solvent preferably including 0.1 wt.% of surfactant, and a rheol. modifier such as attapulgite clay. To increase absorption and neutralization of toxic gases the compn. preferably includes an absorbent promoter such as **aluminum** hydroxide. The coating can be applied on various lignocellulosic materials such as lumber, used for interior and exterior applications such as roofing, walls, and floor sheathing, and applied to other substrates such as glass-fiber laminated composites, etc. Thus, heat-expandable **graphite** 19.564, **CACO<sub>3</sub>** 17.890, **aluminum** trihydrate 1.630, phenol-formaldehyde resin (50% solids) 22.032, resorcinol-formaldehyde resin (75% solids) 0.625, pentaerythritol 3.362, melamine 1.674, chloroparaffin 1.674, Aerosil 0.063, surfactant 0.001, catalyst 0.044, water 26.438 and phenol-formaldehyde resin extender 5.001 wt.% were mixed to obtain a fire-retardant intumescent coating compn. The above coating was applied on both sides of oriented **strand** panel at 150 lbs/msf, thermally cured under IR lamps for .apprx.20 min and then oven cured at 120.degree. for .apprx.30 min, giving av. flame spread index 25.0, ignition time 87.7 s, av. heat release rate in the first 60 s after ignition 36.5 kW/m<sup>2</sup>, and av. specific extinction area in the whole burning process 104.0 m<sup>2</sup>/kg.

ST expandable **graphite** intumescent fire retardant coating; limestone toxic gas absorbent intumescent coating; **calcium carbonate** toxic gas absorbent intumescent coating; phenol formaldehyde resin binder intumescent coating; Aerosil rheol modifier intumescent coating; attapulgite clay rheol modifier intumescent coating; lumber roofing intumescent coating; lignocellulosic material **glass fiber** laminate intumescent coating

IT Roofing  
 (aluminum sheet; fire-retardant expandable coating compn.  
 for)

IT Clays, uses  
 RL: MOA (Modifier or additive use); USES (Uses)  
 (attapulgitic, rheol. modifier; fire-retardant expandable coating compn.)

IT **Acrylic polymers**, uses  
 Aminoplasts  
 Phenolic resins, uses

RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)  
(binder; fire-retardant expandable coating compn.)

IT Alkanes, uses  
RL: MOA (Modifier or additive use); USES (Uses)  
(chloro, blowing agent; fire-retardant expandable coating compn.)

IT Intumescent materials  
(coatings, fire-resistant; fire-retardant expandable coating compn.)

IT Coating materials  
Coating materials  
(fire-resistant, intumescent; fire-retardant expandable coating compn.)

IT Blowing agents  
Solvents  
(fire-retardant expandable coating compn.)

IT Absorbents  
(for toxic gases; fire-retardant expandable coating compn.)

IT Toxicants  
Toxicants  
(gaseous, absorbents for; in fire-retardant expandable coating compn.)

IT Construction materials  
(**gypsum** boards; fire-retardant expandable coating compn. for)

IT Silicates, uses  
RL: MOA (Modifier or additive use); USES (Uses)  
(poly-, organo, rheol. modifier; fire-retardant expandable coating compn.)

IT Binders  
(polymeric; fire-retardant expandable coating compn.)

IT Polyolefins  
RL: MOA (Modifier or additive use); USES (Uses)  
(rheol. modifier; fire-retardant expandable coating compn.)

IT Glass fiber fabrics  
Polyesters, uses  
RL: TEM (Technical or engineered material use); USES (Uses)  
(strandboard laminates; in fire-retardant expandable coating compn.)

IT Construction materials  
(strandboards; fire-retardant expandable coating compn. for)

IT Limestone, uses  
RL: MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses)  
(toxic gas absorbent; fire-retardant expandable coating compn.)

IT Gases  
Gases  
(toxic, absorbents for; in fire-retardant expandable coating compn.)

IT 1305-62-0, Calcium hydroxide, uses 1309-42-8, Magnesium hydroxide  
20427-58-1, Zinc hydroxide 21645-51-2, **Aluminum hydroxide**  
(Al(OH)3), uses  
RL: MOA (Modifier or additive use); USES (Uses)  
(absorbent promoter; fire-retardant expandable coating compn.)

IT 9003-08-1, Melamine-formaldehyde resin 9003-35-4, Phenol-formaldehyde resin 9011-05-6 24969-11-7, Resorcinol-formaldehyde resin 25036-13-9, Melamine-urea-formaldehyde copolymer  
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)  
(binder; fire-retardant expandable coating compn.)

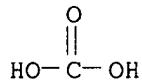
IT 56-40-6, Glycine, uses 57-13-6, Urea, uses 80-17-1, Benzenesulfonyl hydrazide 108-78-1, Melamine, uses 113-00-8, Guanidine 461-58-5, Dicyandiamide 592-31-4, Butyl urea  
RL: MOA (Modifier or additive use); USES (Uses)  
(blowing agent; fire-retardant expandable coating compn.)

IT 7631-86-9, Aerosil, uses

RL: MOA (Modifier or additive use); USES (Uses)  
(colloidal, rheol. modifier; fire-retardant expandable coating compn.)  
IT 7782-42-5, Graphite, uses  
RL: MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses)  
(heat-expandable, Graft Guard; fire-retardant expandable coating compn.)  
IT 50-70-4, Sorbitol, uses 78-24-0, Tripentaerythritol 87-89-8, Inositol 108-46-3, Resorcinol, uses 108-95-2, Phenol, uses 112-27-6, Triethylene glycol 115-77-5, Pentaerythritol, uses 126-58-9, Dipentaerythritol 9004-53-9, Dextrin 9005-25-8, Starch, uses  
RL: MOA (Modifier or additive use); USES (Uses)  
(popcorn effect inhibitor; fire-retardant expandable coating compn.)  
IT 79-06-1, Acrylamide, uses 9000-30-0, Guar gum 9002-89-5, Poly(vinyl alcohol) 9004-62-0, Hydroxyethyl cellulose 9004-67-5, Methyl cellulose 9005-38-3, Sodium alginate 63800-37-3, Sepiolite  
RL: MOA (Modifier or additive use); USES (Uses)  
(rheol. modifier; fire-retardant expandable coating compn.)  
IT 7429-90-5, Aluminum, uses  
RL: TEM (Technical or engineered material use); USES (Uses)  
(sheets, roofing; fire-retardant expandable coating compn. for)  
IT 144-55-8, Sodium hydrogen carbonate, uses 471-34-1,  
Calcium carbonate, uses 497-19-8, Sodium carbonate, uses  
RL: MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses)  
(toxic gas absorbent; fire-retardant expandable coating compn.)  
RE.CNT 12 THERE ARE 12 CITED REFERENCES AVAILABLE FOR THIS RECORD  
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(1) Haas; US 4977194 1990 HCPLUS  
(2) Haas; US 5023280 1991 HCPLUS  
(3) Hsu; US 5246652 1993  
(4) Kolker; US 5434200 1995 HCPLUS  
(5) Liu; US 5968669 1999 HCPLUS  
(6) Lutter; US 5739173 1998 HCPLUS  
(7) Madaj; US 5229427 1993 HCPLUS  
(8) Olstowski; US 3574644 1971 HCPLUS  
(9) Pollack; US 5443894 1995  
(10) Salley; US 4514326 1985 HCPLUS  
(11) Uota; US 5500471 1996 HCPLUS  
(12) Von Bonin; US 5173515 1992 HCPLUS  
IT 7429-90-5, Aluminum, uses  
RL: TEM (Technical or engineered material use); USES (Uses)  
(sheets, roofing; fire-retardant expandable coating compn. for)  
RN 7429-90-5 HCPLUS  
CN Aluminum (8CI, 9CI) (CA INDEX NAME)

A1

IT 471-34-1, Calcium carbonate, uses  
RL: MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses)  
(toxic gas absorbent; fire-retardant expandable coating compn.)  
RN 471-34-1 HCPLUS  
CN Carbonic acid calcium salt (1:1) (8CI, 9CI) (CA INDEX NAME)



Ca

L54 ANSWER 24 OF 52 WPIX (C) 2003 THOMSON DERWENT  
 AN 2000-490811 [43] WPIX  
 DNC C2000-147378  
 TI Nonaqueous sizing system, for glass fibers, comprises film former, coupling agent and polyamide powder.  
 DC A18 A28 A87 F06 L01 P73 Q36  
 IN ADZIMA, L J; MILLER, D G; WARNER, D J; WAMER, D J  
 PA (OWEN) OWENS CORNING; (OWEN) OWENS CORNING CORP; (ADZI-I) ADZIMA L J;  
 (MILL-I) MILLER D G; (WAME-I) WAMER D J; (OWEN) OWENS-CORNING FIBERGLAS  
 TECHNOLOGY INC  
 CYC 90  
 PI WO 2000039042 A1 20000706 (200043)\* EN 27p C03C025-10 <--  
 RW: AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW NL  
 OA PT SD SE SL SZ TZ UG ZW  
 W: AE AL AM AT AU AZ BA BB BG BR BY CA CH CN CR CU CZ DE DK DM EE ES  
 FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS  
 LT LU LV MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ  
 TM TR TT TZ UA UG US UZ VN YU ZA ZW  
 AU 2000021776 A 20000731 (200050) C03C025-10 <--  
 NO 2001003137 A 20010622 (200157) C03C025-10 <--  
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 R: AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT  
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 BR 9916487 A 20011211 (200203) C03C025-10 <--  
 KR 2001099938 A 20011109 (200229) C08J005-08 <--  
 CN 1333734 A 20020130 (200231) C03C025-10 <--  
 US 2002054985 A1 20020509 (200235) D02G003-00  
 MX 2001006420 A1 20010901 (200239) C03C025-10 <--  
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 ZA 2001005123 A 20020828 (200264) 36p C03C000-00 <--  
 JP 2002533296 W 20021008 (200281) 30p C03C025-10 <--  
 HU 2002002933 B 20021228 (200308) C03C025-10 <--  
 ADT WO 2000039042 A1 WO 1999-US29494 19991213; AU 2000021776 A AU 2000-21776  
 19991213; NO 2001003137 A WO 1999-US29494 19991213, NO 2001-3137 20010622;  
 EP 1152991 A1 EP 1999-966167 19991213, WO 1999-US29494 19991213; BR  
 9916487 A BR 1999-16487 19991213, WO 1999-US29494 19991213; KR 2001099938  
 A KR 2001-708092 20010623; CN 1333734 A CN 1999-815688 19991213; US  
 2002054985 A1 US 1998-220221 19981223; MX 2001006420 A1 MX 2001-6420  
 20010622; US 6399198 B1 US 1998-220221 19981223; ZA 2001005123 A ZA  
 2001-5123 20010621; JP 2002533296 W WO 1999-US29494 19991213, JP  
 2000-590958 19991213; HU 2002002933 B WO 1999-US29494 19991213, HU  
 2002-2933 19991213  
 FDT AU 2000021776 A Based on WO 200039042; EP 1152991 A1 Based on WO  
 200039042; BR 9916487 A Based on WO 200039042; JP 2002533296 W Based on WO  
 200039042; HU 2002002933 B Based on WO 200039042  
 PRAI US 1998-220221 19981223  
 IC ICM C03C000-00; C03C025-10; C08J005-08;  
 D02G003-00  
 ICS B32B009-00; B65H047-00; C08F283-02; C08J005-04; C08K007-14;

C08K007-16; C08L101-00  
 ICA C04B014-42; C04B020-10  
 AB WO 200039042 A UPAB: 20021105  
 NOVELTY - Nonaqueous sizing system for glass reinforcing fibers comprises:  
 (a) film former;  
 (b) coupling agent; and  
 (c) polyamide powder.

DETAILED DESCRIPTION - An INDEPENDENT CLAIM is also included for production of a glass fiber having improved processability and Notched Izod, comprising:

- (1) forming the glass fiber strand, and
- (2) coating the glass fiber

strand with the system.

USE - Used to coat glass fibers

(claimed), for in plastic and automotive industries, especially as the internal parts of a car.

ADVANTAGE - It has enhanced processability to the nonaqueous elevated application temperature (NEAT) sized glass fibers while preserving the good dispersibility in the molded product. It has enhanced processability without any loss in dispersibility characteristics of the glass pellets.

Dwg.0/2

FS CPI GMPI

FA AB

MC CPI: A05-F01E; A08-M01; A11-B05; A12-G04; F01-C07E; F01-D09B; F01-H06A; F01-H06B; L01-F03A

L54 ANSWER 25 OF 52 HCAPLUS COPYRIGHT 2003 ACS DUPLICATE 10  
 AN 1999:576877 HCAPLUS

DN 131:200811

TI Inorganic particle-coated glass

fiber strands and products including the same

IN Novich, Bruce; Robertson, Walter J.; Velpari, Vedagiri

PA PPG Industries Ohio, Inc., USA

SO PCT Int. Appl., 75 pp.

CODEN: PIXXD2

DT Patent

LA English

IC ICM C03C025-02

ICS C08J005-08; H05K001-03

CC 37-6 (Plastics Manufacture and Processing)

Section cross-reference(s): 57, 76

FAN.CNT 20

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9944956	A1	19990910	WO 1999-US4057	19990225
	W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM RW: GH, GM, KE, LS, MW, SD, SL, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
	CA 2322155	AA	19990910	CA 1999-2322155	19990225
	AU 9928765	A1	19990920	AU 1999-28765	19990225
	EP 1066224	A1	20010110	EP 1999-909593	19990225
	EP 1066224	B1	20011212		
	R: BE, DE, FR, GB, IT, NL, SE, FI				
	JP 2002505387	T2	20020219	JP 2000-534509	19990225
PRAI	US 1998-34056	A	19980303		

US 1998-170565 A 19981013  
WO 1999-US4057 W 19990225

AB The **fibers** of the **strands** are coated with the residue of an aq. sizing compn. in an amt. >20 wt.% (based on total solids), which particles have a hardness not exceeding that of the fibers. The coated fiber strands are used for reinforcing polymers, glass fiber fabrics, and substrates of polymer-coated strands for electronic circuit boards.

ST size glass fiber fabric reinforced polymer; metal powder size coating; graphite powder size coating; nitride powder size coating; oxide powder size coating; carbide powder size coating; sulfide powder size coating; boride powder size coating; silicate powder size coating; carbonate powder size coating

IT Polymers, uses  
RL: TEM (Technical or engineered material use); USES (Uses)  
(coated glass fibers for reinforcing of)

IT Printed circuit boards  
(coated glass fibers in reinforced polymeric substrates for)

IT Glass fibers, uses  
RL: TEM (Technical or engineered material use); USES (Uses)  
(coated, strands; for reinforced polymeric substrates for electronic circuit boards)

IT Fibers  
RL: TEM (Technical or engineered material use); USES (Uses)  
(coated; with glass fibers in strand-reinforced polymeric substrates for electronic circuit boards)

IT Sizes (agents)  
(glass fiber coated with; in strand-reinforced polymeric substrates)

IT Ceramics  
(glass fibers coated with; for glass fiber strand-reinforced polymeric for substrates for electronic circuit boards)

IT Borides  
Carbides  
Carbonates, uses  
Metals, uses  
Nitrides  
Oxides (inorganic), uses  
Silicates, uses  
Sulfides, uses  
RL: TEM (Technical or engineered material use); USES (Uses)  
(glass fibers coated with; for glass fiber strand-reinforced polymeric for substrates for electronic circuit boards)

IT 10043-11-5, Boron nitride, uses  
RL: TEM (Technical or engineered material use); USES (Uses)  
(glass fibers coated with; for glass fiber strand-reinforced polymeric substrates)

IT 7782-42-5, Graphite, uses  
RL: TEM (Technical or engineered material use); USES (Uses)  
(glass fibers coated with; for glass fiber strand-reinforced polymeric for substrates for electronic circuit boards)

IT 7429-90-5, Aluminum, uses 7439-89-6,  
Iron, uses 7439-98-7, Molybdenum, uses 7440-02-0,

Nickel, uses 7440-05-3, Palladium, uses  
7440-06-4, Platinum, uses 7440-22-4,  
Silver, uses 7440-50-8, Copper, uses  
7440-57-5, Gold, uses  
RL: TEM (Technical or engineered material use); USES (Uses)  
(glass fibers coated with; for  
glass fiber strand-reinforced polymeric  
substrates)

RE.CNT 9 THERE ARE 9 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

- (1) Circuitree; CIRCUITREE 1999, V12(3), P44
- (2) Hitachi Chem Co Ltd; JP 08309928 A 1996 HCPLUS
- (3) Institute Of Electrical Engineers; DATABASE INSPEC
- (4) Lachasse, G; US 5217778 A 1993
- (5) Matsushita Electric Works Ltd; JP 09118759 A 1997 HCPLUS
- (6) Nitto Boseki Co Ltd; JP 02160944 A 1990
- (7) Philipps, T; US 3312569 A 1967 HCPLUS
- (8) Ppg Industries Inc; WO 9639364 A 1996 HCPLUS
- (9) Teldix GmbH; WO 9001860 A 1990

IT 10043-11-5, Boron nitride, uses

RL: TEM (Technical or engineered material use); USES (Uses)  
(glass fibers coated with; for  
glass fiber strand-reinforced polymeric  
substrates)

RN 10043-11-5 HCPLUS

CN Boron nitride (BN) (8CI, 9CI) (CA INDEX NAME)

B=N

IT 7429-90-5, Aluminum, uses 7439-89-6,  
Iron, uses 7440-02-0, Nickel, uses  
7440-05-3, Palladium, uses 7440-06-4,  
Platinum, uses 7440-22-4, Silver, uses  
7440-50-8, Copper, uses 7440-57-5,  
Gold, uses  
RL: TEM (Technical or engineered material use); USES (Uses)  
(glass fibers coated with; for  
glass fiber strand-reinforced polymeric  
substrates)

RN 7429-90-5 HCPLUS

CN Aluminum (8CI, 9CI) (CA INDEX NAME)

Al

RN 7439-89-6 HCPLUS  
CN Iron (7CI, 8CI, 9CI) (CA INDEX NAME)

Fe

RN 7440-02-0 HCPLUS  
CN Nickel (8CI, 9CI) (CA INDEX NAME)

Ni

RN 7440-05-3 HCAPLUS  
CN Palladium (8CI, 9CI) (CA INDEX NAME)

Pd

RN 7440-06-4 HCAPLUS  
CN Platinum (8CI, 9CI) (CA INDEX NAME)

Pt

RN 7440-22-4 HCAPLUS  
CN Silver (8CI, 9CI) (CA INDEX NAME)

Ag

RN 7440-50-8 HCAPLUS  
CN Copper (7CI, 8CI, 9CI) (CA INDEX NAME)

Cu

RN 7440-57-5 HCAPLUS  
CN Gold (8CI, 9CI) (CA INDEX NAME)

Au

L54 ANSWER 26 OF 52 HCAPLUS COPYRIGHT 2003 ACS  
AN 1999:576879 HCAPLUS  
DN 131:200813  
TI Methods for inhibiting abrasive wear of glass fiber **strands**  
IN Novich, Bruce; Robertson, Walter J.; Wu, Xiang  
PA PPG Industries Ohio, Inc., USA  
SO PCT Int. Appl., 71 pp.  
CODEN: PIXXD2  
DT Patent  
LA English  
IC ICM C03C025-02  
      ICS C08J005-08; H05K001-03  
CC 37-6 (Plastics Manufacture and Processing)  
FAN.CNT 20

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9944958	A1	19990910	WO 1999-US4060	19990225
	W:	AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN,			

MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM,  
 TR, TT, UA, UG, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM  
 RW: GH, GM, KE, LS, MW, SD, SL, SZ, UG, ZW, AT, BE, CH, CY, DE, DK,  
 ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG,  
 CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG  
 CA 2321663 AA 19990910 CA 1999-2321663 19990225  
 AU 9927874 A1 19990920 AU 1999-27874 19990225  
 EP 1060143 A1 20001220 EP 1999-908440 19990225  
 EP 1060143 B1 20011205  
 R: BE, DE, FR, GB, IT, NL, SE, FI  
 JP 2002505388 T2 20020219 JP 2000-534511 19990225  
 TW 477779 B 20020301 TW 1999-88103232 19990521  
 PRAI US 1998-34078 A 19980303  
 US 1998-170579 A 19981013  
 WO 1999-US4060 W 19990225

AB The method comprises: (a) applying a primary layer of an aq. sizing compn. comprising a polymeric material and **inorg.** solid lubricant **particles** to at least a portion of a surface of at least one glass fiber of a glass fiber **strand**; (b) at least partially drying the aq. sizing compn. of the primary layer to form a sized **glass fiber strand** having a generally uniform **coating** of the aq. sizing compn. upon the portion of the surface of the glass fiber; and (c) sliding at least a portion of the glass fiber **strand** to contact surface asperities of a solid object, the surface asperities having a hardness value which is greater than a hardness value of the glass fiber, such that abrasive wear of the glass fiber **strand** by contact with the surface asperities of the solid object is inhibited by the **inorg.** solid lubricant **particles**.

ST glass fiber wear inhibition; solid lubricant glass fiber

IT Epoxy resins, uses  
 RL: TEM (Technical or engineered material use); USES (Uses)  
 (acrylates; methods for inhibiting abrasive wear of glass fiber strands)

IT Sizing  
 (methods for inhibiting abrasive wear of glass fiber strands)

IT Glass fibers, processes  
 RL: PEP (Physical, engineering or chemical process); PROC (Process)  
 (methods for inhibiting abrasive wear of glass fiber strands)

IT Acrylic polymers, uses  
 RL: TEM (Technical or engineered material use); USES (Uses)  
 (methods for inhibiting abrasive wear of glass fiber strands)

IT Aminoplasts  
 RL: TEM (Technical or engineered material use); USES (Uses)  
 (methods for inhibiting abrasive wear of glass fiber strands)

IT Epoxy resins, uses  
 RL: TEM (Technical or engineered material use); USES (Uses)  
 (methods for inhibiting abrasive wear of glass fiber strands)

IT Mica-group minerals, uses  
 RL: TEM (Technical or engineered material use); USES (Uses)  
 (methods for inhibiting abrasive wear of glass fiber strands)

IT Phenolic resins, uses  
 RL: TEM (Technical or engineered material use); USES (Uses)  
 (methods for inhibiting abrasive wear of glass fiber strands)

IT Polyamides, uses  
 RL: TEM (Technical or engineered material use); USES (Uses)  
 (methods for inhibiting abrasive wear of glass fiber strands)

IT Polyesters, uses  
 RL: TEM (Technical or engineered material use); USES (Uses)  
 (methods for inhibiting abrasive wear of glass fiber strands)

IT Polyolefins  
RL: TEM (Technical or engineered material use); USES (Uses)  
(methods for inhibiting abrasive wear of glass fiber **strands**)  
IT Silicates, uses  
RL: TEM (Technical or engineered material use); USES (Uses)  
(phylllo-; methods for inhibiting abrasive wear of glass fiber  
**strands**)  
IT Polyurethanes, uses  
RL: TEM (Technical or engineered material use); USES (Uses)  
(thermoplastic; methods for inhibiting abrasive wear of glass fiber  
**strands**)  
IT Plastics, uses  
RL: TEM (Technical or engineered material use); USES (Uses)  
(thermoplastics; methods for inhibiting abrasive wear of glass fiber  
**strands**)  
IT Plastics, uses  
Polyurethanes, uses  
RL: TEM (Technical or engineered material use); USES (Uses)  
(thermosetting; methods for inhibiting abrasive wear of glass fiber  
**strands**)  
IT Polyesters, uses  
RL: TEM (Technical or engineered material use); USES (Uses)  
(unsatd.; methods for inhibiting abrasive wear of glass fiber  
**strands**)  
IT 471-34-1, Calcium carbonate, uses  
1314-13-2, Zinc oxide, uses 1317-33-5  
, Molybdenum disulfide, uses 1318-74-7,  
Kaolinite, uses 1318-93-0, Montmorillonite, uses  
7440-22-4, Silver, uses 7440-28-0, Thallium, uses  
7440-31-5, Tin, uses 7440-50-8, Copper, uses  
7440-57-5, Gold, uses 7440-66-6, Zinc, uses  
7440-74-6, Indium, uses 7782-42-5, Graphite, uses  
7789-75-5, Calcium fluoride, uses 7790-80-9,  
Cadmium iodide 9003-39-8, Polyvinyl pyrrolidone 9036-19-5, IGEPAL  
CA-630 10043-11-5, Boron nitride, uses  
12039-55-3, Tantalum diselenide 12058-18-3, Molybdenumdiselenide  
12067-46-8, Tungsten diselenide 12138-09-9, Tungsten disulfide  
12143-72-5, Tantalum disulfide 12624-35-0, VERSAMID 140  
13397-24-5, Gypsum, uses 14807-96-6,  
Talc, uses 21548-73-2, Silver sulfide 24937-05-1,  
DESMOPHEN 2000 25068-38-6, EPON 826 217478-86-9, RD-847A  
241811-13-2, Epi-Rez 3522W66  
RL: TEM (Technical or engineered material use); USES (Uses)  
(methods for inhibiting abrasive wear of glass fiber **strands**)

RE.CNT 8 THERE ARE 8 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

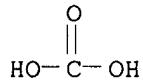
- (1) Hitachi Chem Co Ltd; JP 08309928 A 1996 HCPLUS
- (2) Lachasse, G; US 5217778 A 1993
- (3) Matsushita Electric Works Ltd; JP 09118759 A 1997 HCPLUS
- (4) Nitto Boseki Co Ltd; JP 02160944 A 1990
- (5) Novich, B; Circuitree 1999, V12(3), P44
- (6) PPG Industries Inc; WO 9639364 A 1996 HCPLUS
- (7) Philipps, T; US 3312569 A 1967 HCPLUS
- (8) Teldix GMBH; WO 9001860 A 1990

IT 471-34-1, Calcium carbonate, uses  
1314-13-2, Zinc oxide, uses 1317-33-5  
, Molybdenum disulfide, uses 1318-74-7,  
Kaolinite, uses 7440-22-4, Silver, uses  
7440-50-8, Copper, uses 7440-57-5,  
Gold, uses 7789-75-5, Calcium fluoride

, uses 10043-11-5, Boron nitride, uses  
13397-24-5, Gypsum, uses 14807-96-6,  
Talc, uses  
RL: TEM (Technical or engineered material use); USES (Uses)  
(methods for inhibiting abrasive wear of glass fiber strands)

RN 471-34-1 HCPLUS

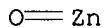
CN Carbonic acid calcium salt (1:1) (8CI, 9CI) (CA INDEX NAME)



Ca

RN 1314-13-2 HCPLUS

CN Zinc oxide (ZnO) (9CI) (CA INDEX NAME)



RN 1317-33-5 HCPLUS

CN Molybdenum sulfide (MoS<sub>2</sub>) (8CI, 9CI) (CA INDEX NAME)



RN 1318-74-7 HCPLUS

CN Kaolinite (Al<sub>2</sub>(OH)<sub>4</sub>(Si<sub>2</sub>O<sub>5</sub>)) (9CI) (CA INDEX NAME)

Component	Ratio	Component	
		Registry Number	
O <sub>5</sub> Si <sub>2</sub>	1	20328-07-8	
HO	4	14280-30-9	
Al	2	7429-90-5	

RN 7440-22-4 HCPLUS

CN Silver (8CI, 9CI) (CA INDEX NAME)

Ag

RN 7440-50-8 HCPLUS

CN Copper (7CI, 8CI, 9CI) (CA INDEX NAME)

Cu

RN 7440-57-5 HCPLUS

CN Gold (8CI, 9CI) (CA INDEX NAME)

Au

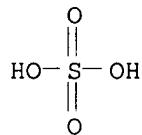
RN 7789-75-5 HCAPLUS  
CN Calcium fluoride (CaF<sub>2</sub>) (9CI) (CA INDEX NAME)

F—Ca—F

RN 10043-11-5 HCAPLUS  
CN Boron nitride (BN) (8CI, 9CI) (CA INDEX NAME)

B≡N

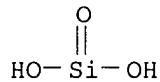
RN 13397-24-5 HCAPLUS  
CN Gypsum (Ca(SO<sub>4</sub>).2H<sub>2</sub>O) (9CI) (CA INDEX NAME)



Ca

2 H<sub>2</sub>O

RN 14807-96-6 HCAPLUS  
CN Talc (Mg<sub>3</sub>H<sub>2</sub>(SiO<sub>3</sub>)<sub>4</sub>) (9CI) (CA INDEX NAME)



3/4 Mg

L54 ANSWER 27 OF 52 WPIX (C) 2003 THOMSON DERWENT  
AN 1999-551022 [46] WPIX  
CR 1999-551017 [46]; 1999-551018 [46]; 1999-551019 [46]; 1999-551020 [46];  
1999-551021 [46]; 2000-350122 [30]; 2000-364682 [31]; 2001-244130 [25];  
2001-257406 [26]; 2001-257524 [26]; 2001-389548 [41]; 2002-017346 [02];  
2002-034088 [04]; 2002-034089 [04]; 2002-041186 [05]; 2002-041187 [05];  
2002-041188 [05]; 2002-049008 [06]; 2002-049009 [06]; 2002-689464 [74];  
2002-730929 [79]; 2003-015741 [01]  
DNN N1999-407757 DNC C1999-160717

TI Inorganic lubricant-coated glass fiber  
strand for reinforced PCB substrates.

DC A18 A28 A60 A85 A93 A94 F01 F02 F06 F08 L01 L03 V04

IN NOVICH, B E; ROBERTSON, W J; VELPARI, V; WU, X

PA (PITT) PPG IND OHIO INC

CYC 84

PI WO 9944960 A1 19990910 (199946)\* EN 79p C03C025-02 <--  
 RW: AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW NL  
 OA PT SD SE SL SZ UG ZW  
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 GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV  
 MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT  
 UA UG UZ VN YU ZW

AU 9927890 A 19990920 (200007)

BR 9908621 A 20001031 (200060) C03C025-02 <--

NO 2000004333 A 20001101 (200065) C03C025-10 <--

EP 1060145 A1 20001220 (200105) EN C03C025-02 <--  
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CN 1295542 A 20010516 (200146) C03C025-42 <--

HU 2001001142 A2 20010828 (200157) C08J005-08 <--

KR 2001041479 A 20010525 (200168) C03C025-02 <--

JP 2002505389 W 20020219 (200216) 78p D06M011-81

EP 1060145 B1 20020529 (200236) EN C03C025-10 <--  
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DE 69901602 E 20020704 (200251) C03C025-10 <--

ADT WO 9944960 A1 WO 1999-US4087 19990225; AU 9927890 A AU 1999-27890  
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 2000004333 A WO 1999-US4087 19990225, NO 2000-4333 20000831; EP 1060145 A1  
 EP 1999-908458 19990225, WO 1999-US4087 19990225; CN 1295542 A CN  
 1999-804714 19990225; HU 2001001142 A2 WO 1999-US4087 19990225, HU  
 2001-1142 19990225; KR 2001041479 A KR 2000-709639 20000831; JP 2002505389  
 W WO 1999-US4087 19990225, JP 2000-534513 19990225; EP 1060145 B1 EP  
 1999-908458 19990225, WO 1999-US4087 19990225; DE 69901602 E DE  
 1999-601602 19990225, EP 1999-908458 19990225, WO 1999-US4087 19990225

FDT AU 9927890 A Based on WO 9944960; BR 9908621 A Based on WO 9944960; EP  
 1060145 A1 Based on WO 9944960; HU 2001001142 A2 Based on WO 9944960; JP  
 2002505389 W Based on WO 9944960; EP 1060145 B1 Based on WO 9944960; DE  
 69901602 E Based on EP 1060145, Based on WO 9944960

PRAI US 1998-170780 19981013; US 1998-34525 19980303

IC ICM C03C025-02; C03C025-10; C03C025-42;  
 C08J005-08; D06M011-81

ICS B29B015-10; C03C025-26; C03C025-44;  
 C03C025-46; C03C025-48; D06M013-513; D06M015-507;  
 H05K001-03

ICI B29K105:08, C08L101:00

AB WO 9944960 A UPAB: 20030101  
 NOVELTY - The strand consists of at least one glass  
 fiber coated with an aqueous sizing composition  
 containing non-hydratable lamellar inorganic solid lubricant  
 particles of a hardness not exceeding that of the glass fibers,  
 and a polymer.  
 DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for:  
 (a) a coated fiber strand as above but where the lubricant  
 particles are of indium, thallium, tin, copper, zinc,  
 gold or silver;  
 (b) a reinforced polymeric composite containing the fibers;  
 (c) an electronic support and an electronic circuit board produced  
 using the composite; and  
 (d) a method for the whitening of a polymeric composite by combining  
 glass fiber strands coated with

**boron nitride, zinc sulfide,**  
montmorillonite and their mixtures with a nylon matrix.

USE - In a reinforced polymeric composite used as an electronic circuit board which is a first, second or third level package (all claimed).

ADVANTAGE - Abrasion and breakage of the **glass fibers** are inhibited. The **coated** fibers are thermally stable, non-corrosive, and compatible with a wide variety of polymer matrix materials.

DESCRIPTION OF DRAWING(S) - The drawing shows a perspective view of a coated fiber **strand**.  
glass fibers 12

primary layer of dried sizing residue 14  
**inorganic particles** 18

Dwg.1/8

FS CPI EPI  
FA AB; GI  
MC CPI: A08-M03; A08-R04; A12-E07A; A12-S08B; F01-H06; F01-H06B; F03-D;  
L01-F03A; L01-L04; L03-H04E1  
EPI: V04-R07L

L54 ANSWER 28 OF 52 WPIX (C) 2003 THOMSON DERWENT  
 AN 1999-551021 [46] WPIX  
 CR 1999-551017 [46]; 1999-551018 [46]; 1999-551019 [46]; 1999-551020 [46];  
 1999-551022 [46]; 2000-350122 [30]; 2000-364682 [31]; 2001-244130 [25];  
 2001-257406 [26]; 2001-257524 [26]; 2001-389548 [41]; 2002-017346 [02];  
 2002-034088 [04]; 2002-034089 [04]; 2002-041186 [05]; 2002-041187 [05];  
 2002-041188 [05]; 2002-049008 [06]; 2002-049009 [06]; 2002-689464 [74];  
 2002-730929 [79]; 2003-015741 [01]  
 DNN N1999-407756 DNC C1999-160716  
 TI Glass fiber reinforced laminate for electronic circuit boards.  
 DC A18 A28 A60 A85 A93 A94 F01 F02 F06 F08 L01 L03 P73 V04 X12  
 IN NOVICH, B E; WU, X; ROBERTSON, W J; VELPARI, V; LAMMON-HILINSKI, K;  
 LAWTON, E L  
 PA (PITT) PPG IND OHIO INC  
 CYC 85  
 PI WO 9944959 A1 19990910 (199946)\* EN 84p C03C025-02 <--  
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 OA PT SD SE SL SZ UG ZW  
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 GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV  
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 AU 9927889 A 19990920 (200007)  
 AU 9963914 A 20000501 (200036) C03C025-10 <--  
 BR 9908520 A 20001024 (200058) C03C025-02 <--  
 NO 2000004272 A 20001101 (200065) C03C025-10 <--  
 NO 2000004333 A 20001101 (200065) C03C025-10 <--  
 EP 1060144 A1 20001220 (200105) EN C03C025-02 <--  
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 CN 1295542 A 20010516 (200146) C03C025-42 <--  
 HU 2001001142 A2 20010828 (200157) C08J005-08 <--  
 HU 2001001382 A2 20010828 (200157) C08J005-08 <--  
 KR 2001041479 A 20010525 (200168) C03C025-02 <--  
 KR 2001041518 A 20010525 (200168) C03C025-02 <--  
 MX 2000008517 A1 20010301 (200170) C03C025-02 <--  
 MX 2000008554 A1 20010301 (200170) C03C025-02 <--  
 TW 436422 A 20010528 (200172) B32B027-00  
 JP 2002505216 W 20020219 (200216) 90p B32B005-00

JP 2002505389 W 20020219 (200216) 78p D06M011-81  
 JP 2002527538 W 20020827 (200271) 98p C08J005-08 <--  
 ADT WO 9944959 A1 WO 1999-US4086 19990225; AU 9927889 A AU 1999-27889  
 19990225; AU 9963914 A AU 1999-63914 19991008; BR 9908520 A BR 1999-8520  
 19990225, WO 1999-US4086 19990225; NO 2000004272 A WO 1999-US4086  
 19990225, NO 2000-4272 20000825; NO 2000004333 A WO 1999-US4087 19990225,  
 NO 2000-4333 20000831; EP 1060144 A1 EP 1999-908457 19990225, WO  
 1999-US4086 19990225; CN 1291963 A CN 1999-803572 19990225; CN 1295542 A  
 CN 1999-804714 19990225; HU 2001001142 A2 WO 1999-US4087 19990225, HU  
 2001-1142 19990225; HU 2001001382 A2 WO 1999-US4086 19990225, HU 2001-1382  
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 2000-709688 20000901; MX 2000008517 A1 MX 2000-8517 20000831; MX  
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 JP 2002505216 W WO 1999-US4086 19990225, JP 2000-534512 19990225; JP  
 2002505389 W WO 1999-US4087 19990225, JP 2000-534513 19990225; JP  
 2002527538 W WO 1999-US21443 19991008, JP 2000-575811 19991008  
 FDT AU 9927889 A Based on WO 9944959; AU 9963914 A Based on WO 200021900; BR  
 9908520 A Based on WO 9944959; EP 1060144 A1 Based on WO 9944959; HU  
 2001001142 A2 Based on WO 9944960; HU 2001001382 A2 Based on WO 9944959;  
 JP 2002505216 W Based on WO 9944959; JP 2002505389 W Based on WO 9944960;  
 JP 2002527538 W Based on WO 200021900  
 PRAI US 1998-170578 19981013; US 1998-34525 19980303; US 1998-130270  
 19980806; US 1999-133075P 19990507; US 1999-133076P 19990507; US  
 1999-146337P 19990730; US 1998-170780 19981013  
 IC ICM B32B005-00; B32B027-00; C03C025-02; C03C025-10;  
 C03C025-26; C03C025-42; C08J005-08;  
 D06M011-81  
 ICS B29B015-10; C03C025-14; C03C025-44;  
 C03C025-46; C03C025-48; D03D001-00; D03D015-12;  
 D06M011-80; D06M013-513; D06M015-507; H05K001-03  
 ICI B29K105:08, C08L101:00, D06M101:00  
 AB WO 9944959 A UPAB: 20030101  
 NOVELTY - The laminate consists of a woven yarn of **glass fibers** coated with a **coating** compatible with a polymeric matrix material. The yarn has a loss on ignition of 0.01-0.6 wt. % and an air jet transport drag force above 100000 g per gram of yarn. The laminate has a flexural strength in the fill direction of the fabric of above 3x107 kg/m<sup>2</sup>.  
 DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for:  
 (a) an electronic circuit board composed of the above laminate with an electrically conductive layer on selected portions or sides; and  
 (b) the production of the fabric by interweaving the coated yarns.  
 USE - For electronic circuit boards, as a first, second or third level package (all claimed).  
 ADVANTAGE - The laminate has a flexural strength in the fill direction of the fabric of above 4.9x107 kg/m<sup>2</sup> (claimed). Reinforcement of the laminates with woven fabric comprising **coated glass fiber strands** provides the laminate with a low coefficient of thermal expansion, thermal stability, hydrolytic stability and low corrosion and reactivity in the presence of high humidity, reactive acids and alkalis.  
 DESCRIPTION OF DRAWING(S) - The drawing shows a cross-section of the reinforced laminate.  
 polymeric matrix material 12  
 woven reinforcement fabric 14  
 laminate 10  
 Dwg.1/6  
 FS CPI EPI GMPI  
 FA AB; GI  
 MC CPI: A08-R04; A12-E07A; A12-S08B; A12-S08D2; F01-D09B; F03-D; F04-E;

L03-H04E1  
 EPI: V04-R07L

L54 ANSWER 29 OF 52 WPIX (C) 2003 THOMSON DERWENT  
 AN 1999-551019 [46] WPIX  
 CR 1999-551017 [46]; 1999-551018 [46]; 1999-551020 [46]; 1999-551021 [46];  
 1999-551022 [46]; 2000-350122 [30]; 2000-364682 [31]; 2001-244130 [25];  
 2001-257406 [26]; 2001-257524 [26]; 2001-389548 [41]; 2002-017346 [02];  
 2002-034088 [04]; 2002-034089 [04]; 2002-041186 [05]; 2002-041187 [05];  
 2002-041188 [05]; 2002-049008 [06]; 2002-049009 [06]; 2002-689464 [74];  
 2002-730929 [79]; 2003-015741 [01]  
 DNN N1999-407754 DNC C1999-160714  
 TI Glass fiber strand coated with  
 thermally conductive inorganic particles useful for  
 reinforcing composites, i.e. PCB substrates.  
 DC A18 A28 A60 A85 A87 F01 F02 F06 F08 L01 L03 V04  
 IN LAMMON-HILINSKI, K; NOVICH, B; ROBERTSON, W J; WU, X  
 PA (PITT) PPG IND OHIO INC  
 CYC 84  
 PI WO 9944957 A1 19990910 (199946)\* EN 81p C03C025-02 <--  
 RW: AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW NL  
 OA PT SD SE SL SZ UG ZW  
 W: AL AM AT AU AZ BA BB BG BR BY CA CH CN CU CZ DE DK EE ES FI GB GD  
 GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV  
 MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT  
 UA UG UZ VN YU ZW  
 AU 9927873 A 19990920 (200007) C03C025-02 <--  
 EP 1060142 A1 20001220 (200105) EN C03C025-02 <--  
 R: BE DE FI FR GB IT NL SE  
 CN 1295539 A 20010516 (200146) C03C025-42 <--  
 KR 2001041546 A 20010525 (200168) C03C025-02 <--  
 MX 2000008553 A1 20010301 (200170) C03C025-02 <--  
 JP 2002505249 W 20020219 (200216) 76p C03C025-10 <--  
 TW 457266 A 20011001 (200243) C08K003-00  
 ADT WO 9944957 A1 WO 1999-US4059 19990225; AU 9927873 A AU 1999-27873  
 19990225; EP 1060142 A1 EP 1999-908439 19990225, WO 1999-US4059 19990225;  
 CN 1295539 A CN 1999-804685 19990225; KR 2001041546 A KR 2000-709727  
 20000902; MX 2000008553 A1 MX 2000-8553 20000901; JP 2002505249 W WO  
 1999-US4059 19990225, JP 2000-534510 19990225; TW 457266 A TW 1999-103239  
 19990527  
 FDT AU 9927873 A Based on WO 9944957; EP 1060142 A1 Based on WO 9944957; JP  
 2002505249 W Based on WO 9944957  
 PRAI US 1998-170781 19981013; US 1998-34663 19980303  
 IC ICM C03C025-02; C03C025-10; C03C025-42;  
 C08K003-00  
 ICS C03C025-26; C03C025-44; C03C025-46;  
 C03C025-48; C08J005-08; H05K001-03  
 ICI C08L101:00  
 AB WO 9944957 A UPAB: 20030117  
 NOVELTY - The strand consists of multiple glass  
 fibers coated with the dried residue of an aqueous  
 sizing composition containing inorganic particles with  
 a thermal conductivity above 30 W/mK at 300K.  
 USE - In a reinforced polymeric composite used as an electronic  
 circuit board which is a first, second or third level package (all  
 claimed).  
 ADVANTAGE - Abrasion and breakage of the glass  
 fibers are inhibited. The coated fibers are compatible  
 with a wide variety of polymer matrix materials.  
 DESCRIPTION OF DRAWING(S) - The drawing shows a perspective view of a

coated fiber strand.

glass fibers 12

primary layer of dried sizing residue 14

inorganic particles 18

coated fiber strand 10

surface of the fiber (12) 16

portion of a surface of the fiber (12) 17

thermally conductive inorganic solid particles 18

average particle size 19

Dwg.1/9

FS CPI EPI

FA AB; GI

MC CPI: A08-R04; A12-E07A; A12-G04; A12-S08D2; F01-D09B; F01-H06A; F03-D;  
F04-E; L01-F03; L03-H04E1

EPI: V04-R07L

L54 ANSWER 30 OF 52 WPIX (C) 2003 THOMSON DERWENT

AN 1999-551017 [46] WPIX

CR 1999-551018 [46]; 1999-551019 [46]; 1999-551020 [46]; 1999-551021 [46];  
1999-551022 [46]; 2000-350122 [30]; 2000-364682 [31]; 2001-244130 [25];  
2001-257406 [26]; 2001-257524 [26]; 2001-389548 [41]; 2002-017346 [02];  
2002-034088 [04]; 2002-034089 [04]; 2002-041186 [05]; 2002-041187 [05];  
2002-041188 [05]; 2002-049008 [06]; 2002-049009 [06]; 2002-689464 [74];  
2002-730929 [79]; 2003-015741 [01]

DNN N1999-407752 DNC C1999-160712

TI Coated glass fiber strand useful

for reinforcing composites, i.e. PCB substrates.

DC A18 A28 A60 A85 A94 F02 F06 L01 L03 V04

IN NOVICH, B; ROBERTSON, W J; NOVICH, B E

PA (PITT) PPG IND OHIO INC

CYC 84

PI WO 9944955 A1 19990910 (199946)\* EN 79p C03C025-02 <--  
RW: AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW NL  
OA PT SD SE SL SZ UG ZW

W: AL AM AT AU AZ BA BB BG BR BY CA CH CN CU CZ DE DK EE ES FI GB GD  
GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV  
MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT  
UA UG UZ VN YU ZW

AU 9927872 A 19990920 (200007)

EP 1060141 A1 20001220 (200105) EN

C03C025-02 <--

R: BE DE FI FR GB IT NL SE

CN 1295541 A 20010516 (200146)

C03C025-42 <--

KR 2001041599 A 20010525 (200168)

C03C025-02 <--

MX 2000008527 A1 20010301 (200170)

C03C025-02 <--

JP 2002505386 W 20020219 (200216)

71p D06M015-564

TW 464639 A 20011121 (200248)

C03C025-02 <--

EP 1060141 B1 20021030 (200272) EN

C03C025-10 <--

R: BE DE FI FR GB IT NL SE

DE 69903715 E 20021205 (200304)

C03C025-10 <--

ADT WO 9944955 A1 WO 1999-US4056 19990225; AU 9927872 A AU 1999-27872  
19990225; EP 1060141 A1 EP 1999-908438 19990225, WO 1999-US4056 19990225;  
CN 1295541 A CN 1999-804691 19990225; KR 2001041599 A KR 2000-709794  
20000904; MX 2000008527 A1 MX 2000-8527 20000831; JP 2002505386 W WO  
1999-US4056 19990225, JP 2000-534508 19990225; TW 464639 A TW 1999-103240  
19990527; EP 1060141 B1 EP 1999-908438 19990225, WO 1999-US4056 19990225;  
DE 69903715 E DE 1999-603715 19990225, EP 1999-908438 19990225, WO  
1999-US4056 19990225

FDT AU 9927872 A Based on WO 9944955; EP 1060141 A1 Based on WO 9944955; JP  
2002505386 W Based on WO 9944955; EP 1060141 B1 Based on WO 9944955; DE  
69903715 E Based on EP 1060141, Based on WO 9944955

PRAI US 1998-170566 19981013; US 1998-34077 19980303

IC ICM C03C025-02; C03C025-10; C03C025-42;  
D06M015-564  
ICS B29B015-10; C03C025-26; C03C025-44;  
C03C025-46; C03C025-48; C08J005-08;  
D06M011-81; D06M013-513; H05K001-03

ICI B29K105:08, C08L101:00

AB WO 9944955 A UPAB: 20030117

NOVELTY - The **strand** consists of multiple glass fibers greater than 5  $\mu\text{m}$  in diameter, impregnated with the dried residue of an aqueous sizing composition containing particles at least 3  $\mu\text{m}$  in size and of a hardness not exceeding that of the glass fibers, which provide interstices between adjacent fibers for the absorption and retention of water.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for:

- (a) a reinforced composite and electronic support consisting of the above **strands** in a polymeric matrix; and
- (b) an electronic circuit board consisting of a fabric composed of the above **strands** covered with a polymer matrix layer and an electrically conductive layer.

USE - The electronic support is a first, second or third level package, or a circuit board (claimed).

ADVANTAGE - Abrasion and breakage of the **glass fibers** are inhibited. The **coated** fibers are compatible with a wide variety of polymer matrix materials.

DESCRIPTION OF DRAWING(S) - The drawing shows a perspective view of a coated fiber **strand**.

glass or quartz fibers 12  
primary layer of dried sizing residue 14  
solid particles 18  
coated fiber **strand** 10  
a portion of the surfaces of the fibers (12) 17  
outer surfaces of the fibers 16  
interstitial spaces 21  
average particle size of the solid particles 19

Dwg.1/8

FS CPI EPI

FA AB; GI

MC CPI: A08-M01; A08-R04; A12-E07A; A12-S08B; F01-H06B; F03-D; L01-F03A;  
L01-L04; L03-H04E1

EPI: V04-R07L

L54 ANSWER 31 OF 52 HCPLUS COPYRIGHT 2003 ACS

AN 1996:588352 HCPLUS

DN 125:197614

TI Fiber-reinforced unsaturated polyester **compositions** with good fluidity at low temperature and manufacture of fiber-reinforced moldings

IN Yamaguchi, Makoto; Matsumoto, Koji

PA Sekisui Chemical Co Ltd, Japan

SO Jpn. Kokai Tokkyo Koho, 9 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

IC ICM C08L067-06

ICS B29C043-02; B29C070-06; C08K007-02

ICI B29K067-00, B29K105-06

CC 37-6 (Plastics Manufacture and Processing)  
Section cross-reference(s): 38

FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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PI JP 08176422 A2 19960709 JP 1994-318870 19941221  
 PRAI JP 1994-318870 19941221

**AB** Title **compns.** contain (a) 100 parts unsatd. polyesters, (b) 0.1-20 parts fatty acid amides of m.p. 80-150.degree., (c) 0.1-10 parts monohydric aliph. alc. of m.p. 40-100.degree. or higher alc. higher fatty acid esters of m.p. 40-120.degree., (d) 50-350 parts **inorg.** **particles** with av. **particle** size (P) 0.1-100 .mu.m, and (e) 2-40% reinforcing fibers. The **compns.** are compression-molded at 60-120.degree. under 2-30 kg/cm<sup>2</sup> to give moldings with good surface appearance. Thus, **glass fiber** chopped **strand** was **impregnated** with a **compn.** of 100 parts fumaric acid-isophthalic acid-propylene glycol-styrene copolymer, 2 parts stearamide, 1 part stearyl alc., 100 parts **powd**. CaCO<sub>3</sub> (P 2 .mu.m), and other additives and covered by a polyethylene film to give a sheet-molding compd. (21% glass fiber content), which was molded at 80.degree. and 20 kg/cm<sup>2</sup> to give a test piece showing good releasability of the polyethylene film, no pinhole on the surface, and prevention of yellowing.

**ST** fiber reinforced unsatd polyester fluidity; low temp fluidity unsatd polyester; fatty acid amide unsatd polyester; monohydric aliph alc unsatd polyester; glass fiber reinforced unsatd polyester; sheet molding compd unsatd polyester; fumaric acid propylene glycol copolymer; isophthalic acid styrene copolymer polyester; stearamide fiber reinforced unsatd polyester; stearyl alc reinforced unsatd polyester; **calcium carbonate powd** unsatd polyester; pinhole prevention unsatd polyester molding; yellowing resistance unsatd polyester molding

**IT** Glass fibers, uses  
 RL: MOA (Modifier or additive use); USES (Uses)  
 (fiber-reinforced unsatd. polyesters with fluidity at low temp. and low pressure for moldings with good surface appearance)

**IT** Polyesters, uses  
 RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)  
 (unsatd., fiber-reinforced unsatd. polyesters with fluidity at low temp. and low pressure for moldings with good surface appearance)

**IT** Discoloration prevention  
 (yellowing, of fiber-reinforced unsatd. polyesters with fluidity at low temp. and low pressure for moldings with good surface appearance)

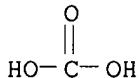
**IT** 110-31-6, Ethylenebisoleylamide 111-87-5, 1-Octanol, uses 112-92-5, Stearyl alcohol 124-26-5, Stearamide 661-19-8, Behenyl alcohol  
 RL: MOA (Modifier or additive use); USES (Uses)  
 (additives; for fiber-reinforced unsatd. polyesters with fluidity at low temp. and low pressure for moldings with good surface appearance)

**IT** 92488-59-0, Fumaric acid-isophthalic acid-propylene glycol-styrene copolymer  
 RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)  
 (fiber-reinforced unsatd. polyesters with fluidity at low temp. and low pressure for moldings with good surface appearance)

**IT** 17671-27-1, Behenyl behenate  
 RL: MOA (Modifier or additive use); USES (Uses)  
 (**powd.**, fillers; fiber-reinforced unsatd. polyesters with fluidity at low temp. and low pressure for moldings with good surface appearance)

**IT** 471-34-1, Calcium carbonate, uses 2778-96-3, Stearyl stearate  
 RL: MOA (Modifier or additive use); USES (Uses)  
 (**powd.**, fillers; for fiber-reinforced unsatd. polyesters with fluidity at low temp. and low pressure for moldings with good surface appearance)

IT 471-34-1, Calcium carbonate, uses  
 RL: MOA (Modifier or additive use); USES (Uses)  
 (powd., fillers; for fiber-reinforced unsatd. polyesters with  
 fluidity at low temp. and low pressure for moldings with good surface  
 appearance)  
 RN 471-34-1 HCAPLUS  
 CN Carbonic acid calcium salt (1:1) (8CI, 9CI) (CA INDEX NAME)



Ca

L54 ANSWER 32 OF 52 WPIX (C) 2003 THOMSON DERWENT  
 AN 1996-362653 [36] WPIX  
 DNN N1996-305685 DNC C1996-114262  
 TI Curable compsn. for **coating** substrates including sized  
**glass fibres** - comprises anti-oxidant comprising terpene  
 materials and/or different vitamin materials, inhibiting auto-oxidn. of  
 coating components, etc..  
 DC A60 E19 F06 G02 L01 L03 V04 V07 X12  
 IN PARRINELLO, L M; TEMPLE, C S  
 PA (PITT) PPG IND INC  
 CYC 22  
 PI WO 9623022 A1 19960801 (199636)\* EN 67p C08J005-06 <--  
 RW: AT BE CH DE DK ES FR GB GR IE IT LU MC NL PT SE  
 W: BR CA CN KR RU  
 US 5670255 A 19970923 (199744) 19p B32B009-00  
 US 5747162 A 19980505 (199825) B32B027-34  
 ADT WO 9623022 A1 WO 1996-US477 19960111; US 5670255 A US 1995-376581  
 19950123; US 5747162 A Div ex US 1995-376581 19950123, US 1997-797104  
 19970207  
 FDT US 5747162 A Div ex US 5670355  
 PRAI US 1995-376581 19950123; US 1997-797104 19970207  
 REP 2.Jnl.Ref; DD 231086; EP 666283; GB 703935; JP 02269876; JP 62164771; US  
 5234750  
 IC ICM B32B009-00; B32B027-34; C08J005-06  
 ICS B32B027-00; C03C025-02  
 AB WO 9623022 A UPAB: 19960913  
 The curable compsn. (I) for coating a substrate comprises an anti-oxidant  
 comprising: (i) terpene materials; and/or (ii) vitamin materials different  
 from (i), in an amt. of 0.0001-5 wt.% based upon the wt. of the substrate.  
 Also claimed are: (A) a substrate having (I) on it; (B) a glass fibre  
**strand** comprising glass fibres and having (I) or dried residue of  
(I) on it; (C) a woven fabric in which 1 of the warp **strand** and  
weft **strand** comprises the glass fibre **strand** having a  
dried residue (I) on it and also a warp slashing compsn.; and (D) a fibre  
**strand** having on it the dried residue of an aq. sizing compsn. as  
a prim. coating and (I) as the sec. coating. The prim. coating has a  
different compsn. from (I).  
 USE - The glass fibre **strands** may be used for e.g. overwrap  
 reinforcement for optical fibre cables and cloth for PCB's.  
 ADVANTAGE - (I) inhibits auto-oxidn. of components of the coating and  
 oxidn. and degradation due to exposure of the coated substrate to oxygen

and ozone, sec. treatment and contact with other oxidising agents in the environment. Oxidn. inhibitor prevents discolouration, thermal instability and deterioration in mechanical and surface properties of composites formed from the materials.

Dwg.0/1

FS CPI EPI  
 FA AB; DCN  
 MC CPI: A08-R04; A11-C04B2; A12-S08B; E05-G01; E06-A01; E06-B01; E10-J02A2;  
     F03-D; F03-E01; F04-E; F04-G01; G02-A05; G02-A05H; L01-F03A;  
     L01-F03L; L01-G04B; L03-H04E  
 EPI: V04-R07L; V07-F01B1; X12-E02B

L54 ANSWER 33 OF 52 HCPLUS COPYRIGHT 2003 ACS  
 AN 1995:723382 HCPLUS  
 DN 123:86170  
 TI Acrylic-coated metal plates resistant to wear, scratch and stain by sulfur oxides and nitrogen oxides  
 IN Okada, Toshihiko; Yoshida, Yasuhide; Hatano, Hiroshi; Oosawa, Kenji; Oomura, Masaki  
 PA Nippon Kokan Kk, Japan  
 SO Jpn. Kokai Tokkyo Koho, 6 pp.  
 CODEN: JKXXAF  
 DT Patent  
 LA Japanese  
 IC ICM B05D007-14  
 ICS B32B015-08; C08K003-00; C08K007-00  
 CC 42-10 (Coatings, Inks, and Related Products)  
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 07136585 JP 2853534	A2 B2	19950530 19990203	JP 1993-284569	19931115
PRAI	JP 1993-284569		19931115		
AB	The title coatings contain powd. aggregates and fibrous or granular aggregates of Mohs hardness .gtoreq.4, wherein the powd. aggregates have av. diam. 0.1-3 .mu.m, granular aggregates 3-30 .mu.m, and fibrous aggregates have thickness 0.1-30 .mu.m at length:thickness ratio .ltoreq.100:1. SUS 303 or galvanized steel plate was chromated, coated with an epoxy resin contg. Cr type anticorrosive pigment, topped with Acroze 6000 Clear, Olester Q 602, glass fiber, and alumina, and baked.				
ST	acrylic aminoplast polyurethane coating filler				
IT	Coating materials (acrylic-coated metal plates resistant to wear, scratch and stain by sulfur oxides and nitrogen oxides)				
IT	Carbon fibers, uses Glass fibers, uses				
	RL: MOA (Modifier or additive use); USES (Uses) (acrylic-coated metal plates resistant to wear, scratch and stain by sulfur oxides and nitrogen oxides)				
IT	Urethane polymers, uses RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses) (acrylic-aminoplast-, acrylic-coated metal plates resistant to wear, scratch and stain by sulfur oxides and nitrogen oxides)				
IT	Aminoplasts RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses) (acrylic-polyurethane-, acrylic-coated metal plates resistant to wear, scratch and stain by sulfur oxides and nitrogen oxides)				

IT Glass, oxide  
 RL: MOA (Modifier or additive use); USES (Uses)  
 (beads, acrylic-coated metal plates resistant to wear, scratch and  
 stain by sulfur oxides and nitrogen oxides)

IT 409-21-2, Silicon carbide, uses 1344-28-1, Alumina, uses 12070-08-5,  
 Titanium carbide  
 RL: MOA (Modifier or additive use); USES (Uses)  
 (acrylic-coated metal plates resistant to wear, scratch and stain by  
 sulfur oxides and nitrogen oxides)

IT 83138-44-7, Olester Q-602 127273-39-6, Acroze 6000  
 RL: PRP (Properties); TEM (Technical or engineered material use); USES  
 (Uses)  
 (acrylic-coated metal plates resistant to wear, scratch and stain by  
 sulfur oxides and nitrogen oxides)

IT 12673-69-7, Potassium titanate  
 RL: MOA (Modifier or additive use); USES (Uses)  
 (fiber; acrylic-coated metal plates resistant to wear, scratch and  
 stain by sulfur oxides and nitrogen oxides)

L54 ANSWER 34 OF 52 WPIX (C) 2003 THOMSON DERWENT  
 AN 1996-029893 [03] WPIX  
 DNN N1996-025283 DNC C1996-010291  
 TI Shielded cable partic. for missile and aerospace application - has  
 shielding layer of metal-coated high-performance polymer fibres.  
 DC A85 W06 W07 X12  
 IN ALDISSI, M  
 PA (CHAM-N) CHAMPLAIN CABLE CORP  
 CYC 1  
 PI US 5473113 A 19951205 (199603)\* 6p H01B007-34  
 ADT US 5473113 A US 1992-949306 19920922  
 PRAI US 1992-949306 19920922  
 IC ICM H01B007-34  
 AB US 5473113 A UPAB: 19960122  
 A shielded cable has a shielding layer (14) between a jacket (15) and  
 insulation (13) covering a core (11). The layer is of metal-coated fibres  
 with operating temp. range to above 150deg.C and braided or served into a  
 mesh to give a shielding effectiveness of 1 mohm/m to 1 ohm/m of  
 surface transfer impedance in a frequency range of at least 100 kHz - 1  
 GHz.  
 The fibres are of poly(p-phenylene-2,6-benzobisthiazole), polybenzoxazole,  
 polybenzimidazole, or polyester-polyarylate, the last optionally mixed  
 with **glass fibres**, and the **coating** metal is  
**Ag, Cu or Ni.** The jacket and insulation are  
 pref. of fluorocarbon polymer, polyimide, halogen-free material or  
 irradiated cross-linked ethylene-tetrafluoroethylene polymer.  
 USE - Has missile and aerospace application.  
 ADVANTAGE - Provides improved shielding, is of lower wt. and has  
 extended operating temp. range.  
 Dwg.1/1  
 FS CPI EPI  
 FA AB; GI  
 MC CPI: A11-C04B1; A12-E02A; A12-T03D; A12-T04C  
 EPI: W06-B01C1; W07-J01; X12-D03B1; X12-D03D; X12-D03E; X12-E02B

L54 ANSWER 35 OF 52 WPIX (C) 2003 THOMSON DERWENT  
 AN 1995-208421 [28] WPIX  
 DNC C1995-096513  
 TI Prodn. and treatment of glass fibres for use in e.g. composite materials  
 - by drawing molten glass through spinneret and treating with heat  
 polymerisable size contg. low mol.wt. polymerisable or crosslinkable cpd..

DC A87 F01 L01  
 IN MOIREAU, P  
 PA (MOIR-I) MOIREAU P; (COMP) VETROTEX FRANCE SA  
 CYC 19  
 PI EP 657395 A1 19950614 (199528)\* FR 16p C03C025-02 <--  
     R: AT BE CH DE DK ES FR GB IE IT LI NL PT SE  
     FR 2713625 A1 19950616 (199529) 27p C03C025-02 <--  
     CA 2137440 A 19950610 (199536) FR C03C025-02 <--  
     JP 07206478 A 19950808 (199540) 13p C03C025-02 <--  
     BR 9404913 A 19950808 (199545) C03B037-02  
     US 5611836 A 19970318 (199717) 9p C03B037-10  
     EP 657395 B1 19990512 (199923) FR C03C025-02 <--  
     R: AT BE CH DE DK ES FR GB IE IT LI NL PT SE  
     DE 69418436 E 19990617 (199930) C03C025-02 <--  
     ES 2133512 T3 19990916 (199946) C03C025-02 <--  
     US 5985447 A 19991116 (200001) D02G003-00  
     KR 322978 B 20020620 (200280) C03C025-02 <--  
 ADT EP 657395 A1 EP 1994-402760 19941202; FR 2713625 A1 FR 1993-14792  
     19931209; CA 2137440 A CA 1994-2137440 19941206; JP 07206478 A JP  
     1994-306591 19941209; BR 9404913 A BR 1994-4913 19941209; US 5611836 A US  
     1994-354823 19941208; EP 657395 B1 EP 1994-402760 19941202; DE 69418436 E  
     DE 1994-618436 19941202, EP 1994-402760 19941202; ES 2133512 T3 EP  
     1994-402760 19941202; US 5985447 A Div ex US 1994-354823 19941208, US  
     1997-782298 19970115; KR 322978 B KR 1994-33217 19941208  
 FDT DE 69418436 E Based on EP 657395; ES 2133512 T3 Based on EP 657395; US  
     5985447 A Div ex US 5611836; KR 322978 B Previous Publ. KR 95017795  
 PRAI FR 1993-14792 19931209  
 REP 03Jnl.Ref; CA 2024379; EP 1286; EP 243275; EP 570283; JP 02175634; JP  
     59050053; US 5055119  
 IC ICM C03B037-02; C03B037-10; C03C025-02; D02G003-00  
     ICS B32B009-00; C08J005-08; C08K007-02  
 AB EP 657395 A UPAB: 19950721  
     Prodn. and treatment of glass fibres, comprises drawing a number of  
     filaments of molten glass through a number of orifices at the base of a  
     spinneret, as a sheet of continuous filaments which are then collected on  
     a moving support. The surface of the filaments is treated, during drawing  
     and before collection, with a size which **polymerises** by heat,  
     and contains less than 5 wt.% of solvent with viscosity not above 400 cP.  
     The base structure **polymerises** and/or cross-links by heat, and  
     contains at least 60 wt.% of cpds. with MW below 750 and with at least one  
     (meth)**acrylic** and/or vinyl ether and/or N-vinylamide and/or  
     N-vinyl-lactam function; the content of polyfunctional cpd(s). being at  
     least 45 wt.% of these cpds. The **glass fibres** are  
     coated with an **unpolymerised** size which  
     **polymerises** by heat. Also claimed are the fibres themselves and a  
     composite contg. them.  
     USE - As reinforcement of composite of organic material (claimed),  
     and of minerals (cement) or organic substances or as textiles.  
     Dwg.0/0  
 FS CPI  
 FA AB  
 MC CPI: A12-G04; A12-S08B; F01-C06; F01-C08B; F01-D09B; F01-H06A; F03-D;  
     L01-F03A1; L01-F03G  
 L54 ANSWER 36 OF 52 WPIX (C) 2003 THOMSON DERWENT  
 AN 1993-272160 [34] WPIX  
 DNC C1993-121416  
 TI Aq. size compsns. esp. useful on glass fibre reinforcement for nylon -  
     contain polyurethane emulsion contg. blocked isocyanate, **acrylic**  
     acid **homopolymer** and amino-silane coupling agent.

DC A14 A28 A82 F06 G02  
 IN COSSEMENT, M; MASSON, N; PIRET, W  
 PA (OWEN) OWENS CORNING; (OWEN) OWENS-CORNING FIBERGLASS CORP; (OWEN)  
 OWENS-CORNING FIBERGLASS TECHNOLOGY INC  
 CYC 9  
 PI US 5236982 A 19930817 (199334)\* 5p C08K005-54  
 WO 9401375 A1 19940120 (199404) EN 17p C03C025-02 <--  
 RW: DE ES FR GB IT  
 W: JP KR  
 EP 603376 A1 19940629 (199425) EN C03C025-02 <--  
 R: DE ES FR GB IT  
 JP 06511227 W 19941215 (199509) 5p C03C025-02 <--  
 TW 278084 A 19960611 (199639) C08J005-08 <--  
 EP 603376 B1 19961218 (199704) EN 12p C03C025-02 <--  
 R: DE ES FR GB IT  
 DE 69306746 E 19970130 (199710) C03C025-02 <--  
 ES 2098047 T3 19970416 (199722) C03C025-02 <--  
 KR 254847 B1 20000501 (200128) C03C025-02 <--  
 ADT US 5236982 A US 1992-912559 19920713; WO 9401375 A1 WO 1993-US6227  
 19930630; EP 603376 A1 EP 1993-915497 19930630, WO 1993-US6227 19930630;  
 JP 06511227 W WO 1993-US6227 19930630, JP 1994-503395 19930630; TW 278084  
 A TW 1993-104104 19930525; EP 603376 B1 EP 1993-915497 19930630, WO  
 1993-US6227 19930630; DE 69306746 E DE 1993-606746 19930630, EP  
 1993-915497 19930630, WO 1993-US6227 19930630; ES 2098047 T3 EP  
 1993-915497 19930630; KR 254847 B1 WO 1993-US6227 19930630, KR 1994-700561  
 19940224  
 FDT EP 603376 A1 Based on WO 9401375; JP 06511227 W Based on WO 9401375; EP  
 603376 B1 Based on WO 9401375; DE 69306746 E Based on EP 603376, Based on  
 WO 9401375; ES 2098047 T3 Based on EP 603376  
 PRAI US 1992-912559 19920713  
 REP DE 3336845; US 3814592; US 3919145  
 IC ICM C03C025-02; C08J005-08; C08K005-54  
 ICS C08L075-04; C09D175-04  
 AB US 5236982 A UPAB: 19960724  
 Aq. size compsns. consist of a polyurethane/isocyanate emulsion (I) contg.  
 blocked isocyanates; a homopolymer (II) of acrylic  
 acid monomer; amino organosilane coupling agent (III); opt. polyvinyl  
 pyrrolidone (IV); and wtaer.  
 Also claimed are glass fibres sized with such a compsn., and  
 theromplastic reisns reinforced with the sized fibres.  
 USE/ADVANTAGE - For **coating glass fibres**  
 used to reinforce polyamide resins (nylons). They greatly improve  
 processability of the fibres without adversely affecting the mechanical  
 properties of the reinforced resin, and partic. ageing in a water/ethylene  
 glycol medium. Incorporation of (IV) provides better **strand**  
 integrity, size stability and fuzz redn  
 Dwg. 0/0  
 Dwg. 0/0  
 FS CPI  
 FA AB  
 MC CPI: A04-F04B; A05-F01B1; A05-G01E1; A07-A04E; A08-D04A; A08-M01D;  
 A12-B05; A12-G; A12-S08B; A12-S08E; F01-H06A; F03-D; G02-A05  
 L54 ANSWER 37 OF 52 HCAPLUS COPYRIGHT 2003 ACS  
 AN 1988:572278 HCAPLUS  
 DN 109:172278  
 TI **Strands** for sealing and insulation  
 IN Riedel, Christoph; Neuhaus, Sabine; Haupt, Guenter; Eichner, Karl Peter;  
 Weschke, Peter  
 PA Forschungsinstitut fuer Textiltechnologie, Ger. Dem. Rep.

SO Ger. (East), 4 pp.  
 CODEN: GEXXA8  
 DT Patent  
 LA German  
 IC ICM F16J015-06  
 ICS C09K003-10  
 CC 42-11 (Coatings, Inks, and Related Products)  
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	DD 255377	A1	19880330	DD 1986-298124	19861222
PRAI	DD 1986-298124		19861222		

AB The title **strands**, which can be prep'd. from inexpensive domestic fibers, consist of flexible cores and sheaths strengthened by impregnation with suspensions of vinylidene chloride copolymers and **graphite** and/or fillers. A typical **strand** had a flexible core (e.g. of Al silicate **fibers**) covered with braided **glass fibers** impregnated as above, the thickness of the sheath being .apprx.5 mm and the total diam. 40 mm.

ST sealing **strand** multilayer; aluminum silicate fiber sealant; glass fiber sealing **strand**; **fiber** inorg sealing **strand**; vinylidene chloride copolymer sealant; **graphite** sealing **strand**

IT Sealing compositions  
 (core-sheath **fiber strands**, impregnating compds.  
 for)

IT Ashes (residues)  
 (electrofilter, impregnants contg., for core-sheath **fiber strands** for sealants)

IT Kaolin, uses and miscellaneous  
 Metals, uses and miscellaneous  
 Oxides, uses and miscellaneous  
 RL: USES (Uses)  
 (impregnating compds. contg., for core-sheath **fiber strands** for insulation)

IT Glass fibers, uses and miscellaneous  
 Rayon, uses and miscellaneous  
 Vinyon **fibers**  
 RL: USES (Uses)  
 (in core-sheath **strands** for sealants)

IT Slate  
 (powders, impregnants contg., for core-sheath fibers for sealants)

IT Synthetic fibers  
 RL: USES (Uses)  
 (aluminum silicate, in core-sheath **strands** for sealants)

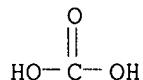
IT Polyamide fibers, uses and miscellaneous  
 RL: USES (Uses)  
 (aramid, in core-sheath **strands** for sealants)

IT 1335-30-4  
 RL: USES (Uses)  
 (**fibers**, in core-sheath **strands** for sealing)

IT 14808-60-7, Quartz, uses and miscellaneous  
 RL: USES (Uses)  
 (flour, impregnants contg., for core-sheath **strands** for sealants)

IT 75-35-4D, Vinylidene chloride, copolymers 7782-42-5, **Graphite**, uses and miscellaneous  
 RL: USES (Uses)

(impregnants contg., for core-sheath fibers for sealants)  
IT 471-34-1, Calcium carbonate, uses and  
miscellaneous 1344-28-1, Alumina, uses and miscellaneous 7727-43-7,  
Barium sulfate  
RL: USES (Uses)  
(impregnating compds. contg., for core-sheath fiber  
strands for insulation)  
IT 9004-34-6  
RL: USES (Uses)  
(rayon, in core-sheath strands for sealants)  
IT 7631-86-9, Silica, uses and miscellaneous  
RL: USES (Uses)  
(sols, impregnants contg., for core-sheath fiber  
strands for sealants)  
IT 9002-86-2  
RL: USES (Uses)  
(vinyon fibers, in core-sheath strands for  
sealants)  
IT 471-34-1, Calcium carbonate, uses and  
miscellaneous  
RL: USES (Uses)  
(impregnating compds. contg., for core-sheath fiber  
strands for insulation)  
RN 471-34-1 HCPLUS  
CN Carbonic acid calcium salt (1:1) (8CI, 9CI) (CA INDEX NAME)



Ca

L54 ANSWER 38 OF 52 HCPLUS COPYRIGHT 2003 ACS  
AN 1987:487988 HCPLUS  
DN 107:87988  
TI Manufacture of electroconductive molding materials  
IN Matsumoto, Yoshio; Ookawa, Akira  
PA Asahi Chemical Industry Co., Ltd., Japan  
SO Jpn. Kokai Tokkyo Koho, 4 pp.  
CODEN: JKXXAF  
DT Patent  
LA Japanese  
IC ICM C08J003-20  
ICS H01B001-24; H05F001-00; H05K009-00  
CC 76-2 (Electric Phenomena)  
Section cross-reference(s): 38  
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 62022831	A2	19870131	JP 1985-160122	19850722
PRAI	JP 1985-160122		19850722		
AB	In the manuf. of electroconductive molding materials, metal and/or metal-coated fillers, short carbon fiber chopped strands (bulk d. .gtoreq.200 g/L, angle of repose .ltoreq.50.degree.), and resins are fused together and mixed. The polymer is used in antistatic or				

electromagnetic shielding materials. Epoxy resin-impregnated C **fiber** chopped strand (bulk d. 400 g/L, angle of repose 35.degree.) 25, Cu powder 10, and nylon 66 100 parts were dry-blended, pelletized, and injection-molded to give a test piece, which showed surface resistivity 20, tensile strength 2200 kg/cm<sup>2</sup>, bending strength 2900 kg/cm<sup>2</sup>, and Izod impact strength 7.0 kg-cm/cm, compared to 500, 1600, 2100, and 4.0, resp., for a material using a chopped strand with a bulk d. of 180 g/L and an angle of repose of 55.degree.).

ST antistatic molding compn metallic filler; conductive elec polymer inorg filler; carbon **fiber strand** conductive polymer; metallic filler conductive polymer; radiation shield molding compn

IT Polycarbonates, uses and miscellaneous  
 RL: USES (Uses)  
 (carbon **fiber strand** and metallic filler contg., electroconductive molding compns. from)

IT Carbon fibers, uses and miscellaneous  
 RL: USES (Uses)  
 (chopped strand, electroconductive molding compns. contg.)

IT Plastics, molded  
 RL: USES (Uses)  
 (contg. carbon **fiber strand** and metallic fillers, antistatic and radiation shield material from)

IT Glass fibers, uses and miscellaneous  
 RL: USES (Uses)  
 (copper or nickel-coated, electroconductive molding compns. contg.)

IT Coating materials  
 (epoxy resins, carbon fiber coated with bisphenol A-type, electroconductive molding compns. contg.)

IT Antistatic agents  
 (molded plastic material as)

IT Electric conductors  
 (molding compns. as)

IT Electromagnetic wave  
 Radio wave  
 (shields for, molded plastic)

IT 9041-80-9, Poly(phenylene ether) 32131-17-2, Nylon 66, properties  
 RL: USES (Uses)  
 (carbon **fiber strand** and metallic filler contg., electroconductive molding compns. from)

IT 7440-44-0  
 RL: USES (Uses)  
 (carbon **fibers**, chopped strand, electroconductive molding compns. contg.)

IT 7429-90-5, Aluminum, properties  
 RL: PRP (Properties)  
 (flake, electroconductive molding compns. contg.)

IT 7440-02-0, Nickel, properties 7440-50-8,  
 Copper, properties  
 RL: PRP (Properties)  
 (powder, electroconductive molding compns. contg.)

IT 7429-90-5, Aluminum, properties  
 RL: PRP (Properties)  
 (flake, electroconductive molding compns. contg.)

RN 7429-90-5 HCPLUS

CN Aluminum (8CI, 9CI) (CA INDEX NAME)

Al

IT 7440-02-0, Nickel, properties 7440-50-8,  
**Copper, properties**  
 RL: PRP (Properties)  
 (powder, electroconductive molding compns. contg.)  
 RN 7440-02-0 HCAPLUS  
 CN Nickel (8CI, 9CI) (CA INDEX NAME)

Ni

RN 7440-50-8 HCAPLUS  
 CN Copper (7CI, 8CI, 9CI) (CA INDEX NAME)

Cu

L54 ANSWER 39 OF 52 WPIX (C) 2003 THOMSON DERWENT  
 AN 1987-300903 [43] WPIX  
 DNC C1987-128032  
 TI Glass yarn prodn. - by gathering melt spun **glass fibres**  
 coated with unsatd. oligomer and photoinitiator finishing compsn.  
 whilst drafting.  
 DC A28 A32 F06 L01 P42  
 IN AUGIER, E; MAHLER, J; SOSZKA, B  
 PA (COMP) VETROTEX SAINT-GOBA; (COMP) VETROTEX SAINT-GOBAIN  
 CYC 10  
 PI EP 243275 A 19871028 (198743)\* FR 24p  
 R: BE DE ES FR GB IT SE  
 FR 2597856 A 19871030 (198751)  
 JP 62260739 A 19871113 (198751)  
 US 5049407 A 19910917 (199140) 11p  
 EP 243275 B 19911127 (199148)  
 R: BE DE ES FR GB IT SE  
 DE 3774754 G 19920109 (199203)  
 US 5171634 A 19921215 (199301) 11p D02G003-18  
 CA 1327181 C 19940222 (199413) FR C03C025-02 <--  
 ES 2092980 T3 19961216 (199707) C03C025-02 <--  
 JP 10114830 A 19980506 (199828) 10p C08J005-08 <--  
 JP 2776808 B2 19980716 (199833) 9p C03C025-02 <--  
 JP 2914933 B2 19990705 (199932) 9p C08J005-08 <--  
 ADT EP 243275 A EP 1987-400935 19870423; FR 2597856 A FR 1986-5938 19860424;  
 JP 62260739 A JP 1987-101104 19870423; US 5049407 A US 1989-313347  
 19890217; US 5171634 A Div ex US 1989-313347 19890217, US 1991-710495  
 19910605; CA 1327181 C CA 1987-535356 19870423; ES 2092980 T3 EP  
 1987-400935 19870423; JP 10114830 A Div ex JP 1987-101104 19870423, JP  
 1997-103608 19870423; JP 2776808 B2 JP 1987-101104 19870423; JP 2914933 B2  
 Div ex JP 1987-101104 19870423, JP 1997-103608 19870423  
 FDT US 5171634 A Div ex US 5049407; ES 2092980 T3 Based on EP 243275; JP  
 2776808 B2 Previous Publ. JP 62260739; JP 2914933 B2 Previous Publ. JP  
 10114830  
 PRAI FR 1986-5938 19860424  
 REP 3.Jnl.Ref; JP 60071549; JP 60083908; JP 81059646; US 3425862; FR 2073472  
 IC ICM C08J005-08; D02G003-18

ICS B05D003-06; B29C070-10; D02G003-36; D02J001-22  
 ICA C03C025-02; C08F002-46; D06M014-08  
 ICI B29K105:08  
 AB EP 243275 A UPAB: 19930922

Process and appts. are claimed for prodn. of glass yarns by mechanically drawing several glass fibres melt spun through a multi-orifice die and coating the fibres with an opt. aq. soln. or emulsion of a finishing agent (I).

The improvements are that (I) comprises a mono- or poly-unsatd. oligomer, a photoinitiator and opt. an organic solvent and/or a mono- or polyunsatd. monomer, and the coated fibres are gathered into a yarn which, whole still being drawn, is subjected to an actinic radiation.

ADVANTAGE - The process allows the mechanical, thermal and chemical props. of the obtd. yarn to be maintained at their highest level and provides means for varying at will the various characteristics of the yarn such as its stiffness or its integrity.

0/5

FS CPI GMPI  
 FA AB  
 MC CPI: A08-C01; A11-B05; A11-C02B; A11-C02C; A12-B05; F01-C01; F01-C03;  
 F01-C06; F01-D09B; F01-H06; L01-F03

L54 ANSWER 40 OF 52 HCAPLUS COPYRIGHT 2003 ACS

AN 1986:461765 HCAPLUS

DN 105:61765

TI Fiber mats

IN Shoji, Akio; Murakami, Yoichi

PA Dainippon Ink and Chemicals, Inc., Japan

SO Jpn. Kokai Tokkyo Koho, 4 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

IC ICM D04H001-58

CC 38-3 (Plastics Fabrication and Uses)

Section cross-reference(s): 40, 58

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 61000656	A2	19860106	JP 1984-115599	19840607
	JP 06063168	B4	19940817		
PRAI	JP 1984-115599		19840607		

AB Fiber mats, useful for reinforcing cements, are prep'd. by using, as binders **powd.** thermosetting resin **compns.** composed mainly of vinyl polymers. Thus, .beta.-methylglycidyl **methacrylate** 15, glycidyl **methacrylate** 10, styrene 40, di-Bu fumarate 15, and Bu **methacrylate** 20 parts were **polymd.** in presence of AIBN and Bz2O2 to give a **copolymer** (I), 100 parts of which was kneaded with 15 parts decanedicarboxylic acid and 1 part Modaflow, then cooled and pulverized to give a **powd.** binder (av. size 120 .mu.). **Glass fiber** chopped **strand** (100 parts) was spray-coated with 12 parts the **powder**, heated at 200.degree., and cold rolled to give a chopped **strand** mat showing tensile strength >50 kg and no interference of cement solidification vs. 15 kg and interference, resp., using fumaric acid-2,2-bis(.beta.-hydroxypropoxyphenyl)propane copolymer instead of I.

ST vinyl polymer binder fiber mat; glass fiber mat cement reinforcement; thermosetting resin binder fiber mat

IT Glass **fibers**, uses and miscellaneous  
 RL: USES (Uses)

(chopped **strand fiber** mat, vinyl polymer binder

for, for reinforcing cement)

IT Cement  
     (glass fiber mats for reinforcement of, binders for)

IT Binding materials  
     (vinyl polymers, for glass fiber mats for reinforcing cement)

IT 41529-28-6 59932-87-5 59932-90-0  
   RL: USES (Uses)  
     (binders, for glass fiber chopped strand mats for  
       reinforcing cement)

IT 30228-06-9D, methanol-blocked  
   RL: USES (Uses)  
     (oligomeric, vinyl polymer binders contg., for fiber mats for  
       reinforcement of cement)

IT 693-23-2 26022-14-0  
   RL: USES (Uses)  
     (vinyl polymer binders contg., for fiber mats for reinforcing cement)

L54 ANSWER 41 OF 52 WPIX (C) 2003 THOMSON DERWENT  
 AN 1986-340572 [52] WPIX  
 DNC C1986-147601  
 TI Glass fibre strands for reinforcing polymeric matrices - with  
   aq. compsn. comprising bisphenol epoxy polyester, coupling agent,  
   lubricant and antistatic agent.  
 DC A28 A60 A87 E19 F06 L01  
 IN DAS, B; HUDSON, H J; MELLE, D T; SANZERO, G V  
 PA (PITT) PPG IND INC  
 CYC 11  
 PI EP 206189 A 19861230 (198652)\* EN 50p  
   R: BE CH DE FR GB IT LI NL  
   JP 62036048 A 19870217 (198712)  
   US 4752527 A 19880621 (198827)  
   US 4789593 A 19881206 (198851)  
   EP 206189 B 19901024 (199043)  
   R: BE CH DE FR GB IT LI NL  
   DE 3675081 G 19901129 (199049)  
   CA 1285833 C 19910709 (199132)  
   JP 05007337 B 19930128 (199307) 19p C03C025-02 <--  
 ADT EP 206189 A EP 1986-108109 19860614; JP 62036048 A JP 1986-149333  
   19860625; US 4752527 A US 1986-925463 19861030; US 4789593 A US 1987-39812  
   19870413; JP 05007337 B JP 1986-149333 19860625  
 FDT JP 05007337 B Based on JP 62036048  
 PRAI US 1984-683740 19841219; US 1985-748388 19850625; US 1985-748389  
   19850625; US 1986-925463 19861030  
 REP EP 186077; US 3923708; US 4110094; US 4166747; US 4518653  
 IC ICM C03C025-02  
   ICS C03C013-00; C08J005-08; C09J167-03; D02G003-00  
 AB EP 206189 A UPAB: 19930922  
   Multifilament glass fibre strands are treated with an aq.  
   compsn. of a water-soluble, dispersible or emulsifiable film-forming  
   polymer (I) having polyesters and epoxy functionality, an organic coupling  
   agent (II), a cationic fibre lubricant and an antistatic agent (III).  
   (I) is a bisphenolA polyester. (II) is an acryloxy or methacryloxy  
   cpd. (III) is a quaternary ammonium salt contg. alkoxy. (III) has an acid  
   number of at least 10 and used at 0.05-0.4 wt.% of the aq.compsn. Compsn.  
   has a solids content of 1-30 wt.% and a pH of less than 7 and is free of  
   inorganic antistatic agents.  
   USE/ADVANTAGE - Fibres are used as chopped strand or  
   continuous strand for reinforcing polymers. Treated fibres are  
   wettable and the size compsn. does not detract from the weatherability of  
   the composite.

In an example, 380g (IV) and 25g acetic acid were dissolved in 22.72 kg water and mixed with 151.6g. Emerylube (RTM) 6717 lubricant in 1.89 kg water. 22.72 kg of (Neoxil (RTM) 945) bisphenol A epoxy polyester emulsion and 284 g (Neoxil (RTM) AO-5620) antistatic agent were added. The compsn. was applied to 'H-55' glass fibre strands. The dried strands were chopped to 1 inch and incorporated in an acrylic polyester matrix to form translucent panels.

0/3

FS CPI  
 FA AB  
 MC CPI: A05-A01E4; A05-E01D1; A08-M01B; A12-S08B; E05-E02; E10-A22E;  
 F01-D09A; F01-H06B; F03-D; L01-F03A

L54 ANSWER 42 OF 52 WPIX (C) 2003 THOMSON DERWENT  
 AN 1985-248975 [40] WPIX  
 DNN N1985-186233 DNC C1985-108026  
 TI Glass fibres treated with silane coupling agents - to improve handling and mechanical thermal and processing properties.  
 DC A25 A26 A87 F06 L01 P73  
 IN GAA, P C  
 PA (PITT) PPG IND INC  
 CYC 12  
 PI US 4542065 A 19850917 (198540)\* 20p  
 EP 162421 A 19851127 (198548) EN  
 R: BE CH DE FR GB IT LI NL  
 JP 60255650 A 19851217 (198605)  
 CA 1254086 A 19890516 (198924)  
 EP 162421 B 19910807 (199132)  
 R: BE CH DE FR GB IT LU NL  
 DE 3583700 G 19910912 (199138)  
 JP 05045533 B 19930709 (199330) 30p C03C025-02 <--  
 ADT US 4542065 A US 1984-612536 19840521; JP 60255650 A JP 1985-108068  
 19850520; JP 05045533 B JP 1985-108068 19850520  
 FDT JP 05045533 B Based on JP 60255650  
 PRAI US 1984-612536 19840521  
 REP A3...8648; GB 956363; No-SR.Pub; US 3837892; US 4430486  
 IC B32B009-00; C03C025-02; C08G077-04; C08J005-08;  
 D02G003-00  
 AB US 4542065 A UPAB: 19930925  
 The fibres are treated with a compsn. comprising an aq. dispersion of a polyurethane resin having pendant silyl gps. with at least one siliconate anion, and an external lubricating dispersant. The dispersion has pH greater than 7 when the polymer contains more than 0.1wt.% silyl.

The polyurethane resin dispersion (I) is formed by reacting an organic polyisocyanate (III), a cpd. contg. at least 2 active H per atom (IV) and an organosilane (V) contg. an isocyanate-reactable gp. with an alkoxy, acyloxy or hydroxy gp. associated with the Si. A prepolymer is formed from (III) and (IV) at 200 deg.C in an anhydrous medium which is dispersed to form an oil-in-water emulsion using a dispersant (II). This is chain extended with (V). In another embodiment the prepolymer is formed from (III), (IV) and (V) and is subsequently chain extended. The prod. has pendant silyl gps. in an amt. which does not cause three dimensional gelation through nonsiliconate anion gp. interaction to form siloxanes. It has backbone hardening segments due to (IV). (II) is an emulsifier with a predominant amt. of ethylene oxide and is polyoxyethylene, monofunctional polyether, polyether polyols or cpds. contg. ethylene oxide and 1 or 2 active H per molecule. Pref. is ethylene oxide polymer with a predominant amt. of ionic material. (V) has at least 2 isocyanate reactable gps. on the organic moiety and is 100% monomeric. It is pref. of formula (V). Ry, Rz = 2-20C

organic gps. e.g. 1-6C alkyl, aryl(alkyl) and alkylaryl; Rx = H, (m)ethyl or n-propyl and (ORx) is then hydrolysable or hydrolysed gps. such as OH, alkoxy and **acryloxy**; y = 0, 1; and z = 1, 2. Ry and/or Rz bears one isocyanate reactable gp. or when y = 0 R2 bears 1 or 2 gps.

ADVANTAGE - The fibres have good **strand** handling, mechanical, thermal and processing properties and can give reinforced polymers having good strength and good UV colour stability.

0/0

FS CPI GMPI

FA AB

MC CPI: A05-G01E; A08-M01B; A08-M01D; A08-M03; A12-S08; F01-H06; F03-D; L01-F03A

L54 ANSWER 43 OF 52 WPIX (C) 2003 THOMSON DERWENT

AN 1985-143348 [24] WPIX

DNC C1985-062329

TI Electromagnetic wave-shielding metal-**coated glass fibre** - obtd. by **coating** metal membrane on surface of **glass fibres**.

DC L01 L03 M13

PA (ASAG) ASAHI GLASS CO LTD

CYC 1

PI JP 60077151 A 19850501 (198524)\* 6p  
JP 04017215 B 19920325 (199216) 3p

ADT JP 60077151 A JP 1983-180430 19830930; JP 04017215 B JP 1983-180430 19830930

PRAI JP 1983-180430 19830930

IC C03C025-04; C08J005-08

AB JP 60077151 A UPAB: 19930925

Metal **coated glass fibres** are obtd. by **coating** electroconductive metal membrane having thickness 0.1-100 microns e.g. of Ni, Cu, Co, Fe, Ni-Cu alloy, Ni-P alloy, Co-P alloy, Co-Ni-P alloy, Fe-Ni alloy or Fe-Co alloy etc., on the surfaces of glass fibres e.g. glass fibres cloth, chopped **strand** glass fibres, chopped **strand** mat glass fibres and yarn glass fibres etc. by non-electrolytic plating process or a combination of non-electrolytic plating and electroplating process.

ADVANTAGE - Metal membrane is more strongly adhered to the **glass fibres** than conventional fused Al **coated glass fibres**. FRP prod. made from the **glass fibres** exhibits good bending strength and electromagnetic wave shielding effect.

0/4

FS CPI

FA AB

MC CPI: L01-F03A; L01-G04; L03-G; M13-B

L54 ANSWER 44 OF 52 WPIX (C) 2003 THOMSON DERWENT

AN 1984-263396 [42] WPIX

DNC C1984-111573

TI Chopped **strand** glass fibre for reinforcing thermoplasts - having a sintered plastic coating to prevent abrasive wear of processing machinery.

DC A32

PA (DAAE-I) DAAE-JOHANSEN F; (NHYD) NORSK HYDRO AS

CYC 14

PI WO 8403858 A 19841011 (198442)\* EN 10p

RW: AT BE CH DE FR GB LU NL SE

W: DK FI JP US

NO 8301132 A 19841022 (198449)  
 EP 140913 A 19850515 (198520) EN  
 R: DE FR GB SE  
 DK 8405613 A 19841127 (198534)  
 FI 8404674 A 19841128 (198537)  
 EP 140913 B 19891004 (198940) EN  
 R: DE FR GB SE  
 DE 3479975 G 19891109 (198946)  
 ADT WO 8403858 A WO 1984-NO17 19840326; EP 140913 A EP 1984-901239 19840326  
 PRAI NO 1983-1132 19830328  
 REP DE 2228199; DE 2340369; US 3586560; US 4098927; 1.Jnl.Ref; EP 22165  
 IC B29B001-02; B29B007-58; B29B009-12; B29C045-17; B29C047-08; B29C067-00;  
 B29D003-02; B29F001-00; B29F003-00; C03C000-00;  
 C08J005-00  
 AB WO 8403858 A UPAB: 19930925  
 Plastic coating pretreatment of chopped strand  
 glass fibre in the form of collected monofilaments  
 and/or glass fibre monofilaments (length 1-5, pref. ca. 3 mm) for  
 reinforcing thermoplasts by (i) preheating the chopped strand at  
 50-300 deg.C, depending on the m.pt. of coating material, and  
 (ii) blending with a plastic (granular size 5-100, pref. 5-50 microns)  
 under agitation to provide a coating adhered by sintering. The  
 coated glass fibre is blended with  
 thermoplasts for use in extruders and injection moulding machinery to  
 prevent wear in such machinery.  
 ADVANTAGE - The plastic coating acts as a self-lubricating barrier  
 preventing abrasive wear between glass fibre and metal components of  
 processing machinery.  
 0/0  
 FS CPI  
 FA AB  
 MC CPI: A08-R05; A12-B05; A12-S08B  
  
 L54 ANSWER 45 OF 52 WPIX (C) 2003 THOMSON DERWENT  
 AN 1983-827010 [48] WPIX  
 DNN N1983-211831 DNC C1983-115456  
 TI Stainless steel fibre reinforced thermoplastics - having good  
 impermeability to electromagnetic interference.  
 DC A18 A23 A85 L03 P73 V04  
 IN CANCAVE, G M; GARTEISEN, S R; WENGER, R M  
 PA (REXA) DART IND INC; (PLAS-N) PLASTIC SPEC & TECH  
 CYC 13  
 PI BE 897277 A 19831103 (198348)\* 14p  
 DE 3325954 A 19840126 (198405)  
 GB 2123838 A 19840208 (198406)  
 AU 8316830 A 19840126 (198411)  
 NL 8302573 A 19840216 (198411)  
 SE 8304085 A 19840227 (198411)  
 FR 2531968 A 19840224 (198413)  
 JP 59041246 A 19840307 (198416)  
 ZA 8305187 A 19840217 (198418)  
 US 4500595 A 19850219 (198510)  
 ES 8504545 A 19850716 (198551)  
 GB 2123838 B 19860122 (198604)  
 CA 1218231 A 19870224 (198713)  
 IT 1167658 B 19870513 (198941)  
 SE 460851 B 19891127 (198950)  
 ADT DE 3325954 A DE 1983-3325954 19830719; GB 2123838 A GB 1983-19449  
 19830719; NL 8302573 A NL 1983-2573 19830719; FR 2531968 A FR 1983-12207  
 19830722; JP 59041246 A JP 1983-132040 19830721; ZA 8305187 A ZA 1983-5187

19830715; US 4500595 A US 1982-400779 19820722  
 PRAI US 1982-400779 19820722  
 IC B29C000-00; B29D003-02; B29F001-00; B32B005-06; C08J005-04; C08K003-08;  
 C08K007-04; C08L069-00; C08L101-00; C08T000-00; G12B017-02; G21B017-02;  
 H01B005-16; H01B017-64; H05K009-00  
 AB BE 897277 A UPAB: 19930925  
 A reinforced thermoplastic material contains staple fibres or  
 strands of stainless steel. The matrix resin is e.g. polyolefins,  
 polystyrene, SAN, ABS, nylon, PPS, **polycarbonates**,  
 polyurethanes, cellulose esters, polyesters, **acrylic**  
**polymers**, PVC, polyvinylidene chloride, vinyl chloride/vinylidene  
 chloride **copolymers**, PPO, mixts. of styrene and PPO, or any  
 combination of these. The compsn. pref. contains 0.5-60, esp. 1.0-8.0 wt.%  
 of the fibrous component w.r.t. the resin component.  
 The compsns. can be injection moulded into articles which exhibit  
 good screening of electromagnetic interference. The stainless steel fibres  
 show less degradation during processing than previous material such as  
 carbon **fibres** and **silver coated**  
 glass balls, and can be used in smaller amts. than fillers such as  
 carbon black and **silver** coated glass balls, thus giving prods.  
 with better mechanical properties. The compsns. can be moulded e.g. into  
 screens for automobile and electronic equipment to shield troublesome  
 electromagnetic interference.  
 0/0  
 FS CPI EPI GMPI  
 FA AB  
 MC CPI: A08-R05; A12-S08C; L03-A  
 EPI: V04-U  
 L54 ANSWER 46 OF 52 WPIX (C) 2003 THOMSON DERWENT  
 AN 1982-57602E [28] WPIX  
 TI Aq. treating compsn. for glass fibre - contg. vinyl and amino-substd.  
 silane coupling agents, esp. for plastics reinforcement.  
 DC A26 A87 F06 L01 P54 P73  
 IN TEMPLE, C S  
 PA (PITT) PPG IND INC  
 CYC 11  
 PI EP 55443 A 19820707 (198228)\* EN 26p  
 R: BE CH DE FR GB IT LI NL  
 JP 57160942 A 19821004 (198245)  
 JP 58036950 A 19830304 (198315)  
 EP 98315 A 19840118 (198404) EN  
 R: BE CH DE FR GB IT LI NL  
 JP 59008644 A 19840117 (198408)  
 US 4455343 A 19840619 (198427)  
 CA 1171206 A 19840724 (198434)  
 EP 55443 B 19840926 (198439) EN  
 R: BE CH DE FR GB IT LI NL  
 DE 3166373 G 19841031 (198445)  
 JP 01027176 B 19890526 (198925)  
 JP 03046415 B 19910716 (199132)  
 ADT EP 55443 A EP 1982-105930 19820702; JP 57160942 A JP 1982-116083 19820702;  
 JP 58036950 A JP 1981-216108 19811226; EP 98315 A EP 1981-110633 19811221;  
 US 4455343 A US 1980-220349 19801229  
 PRAI US 1980-220349 19801229  
 REP US 3849148; US 3936285; US 3997306; No-Citns,  
 IC B23B017-04; B32B015-00; B32B017-04; C03C025-02;  
 C08J005-08; D04H001-48  
 AB EP 55443 A UPAB: 19930915  
 Treated **glass fibre strand** has a

coating of an aq. compsn. contg. (wt.%) (a) 0.5-10% silane coupling agent; (b) 0.1-6% nonionic surfactant, (c) 0.001-1% glass fibre lubricant; (d) 0.1-6% heat-stable organic peroxide (free radical initiator) plus usual additives and water. The new feature is that component (a) is a mixt. of 60-99 wt.% vinyl-contg. silane coupling agent (I) and 1-40 (15-25) wt.% satd. amino-organic silane coupling agent (II).

The coating compsn. may also contain 0.5-8 wt.% of a film-forming polymer; specifically polyvinylacetate homopolymer, and 0.01-1 wt.% of a softener, esp. a 50:50 anionic-cationic methylsulphate quat. fatty ester cpd. S The treated fibres are useful for making glass fibre mats (e.g. needle mats of continuous glass fibre), and the resulting mats are useful for reinforcing thermoplastic polymers. The reinforced polymers have improved stampability.

FS CPI GMPI  
 FA AB  
 MC CPI: A08-M01D; A12-S08B; F01-H06; F03-D; L01-F03A; L01-F03E

L54 ANSWER 47 OF 52 JAPIO COPYRIGHT 2003 JPO  
 AN 1981-073649 JAPIO  
 TI GLASS FIBER BUNDLING AGENT  
 IN TAKAO NOBUYUKI; KITAMURA TADANORI  
 PA NITTO BOSEKI CO LTD  
 PI JP 56073649 A 19810618 Showa  
 AI JP 1979-146961 (JP54146961 Showa) 19791113  
 PRAI JP 1979-146961 19791113  
 SO PATENT ABSTRACTS OF JAPAN (CD-ROM), Unexamined Applications, Vol. 1981  
 IC ICM C03C025-02  
 ICA C08J005-08; D06M015-36; D06M015-42  
 AB PURPOSE: To enable a **glass fiber** thick **coat**  
 to be stably manufactured by using a bundling agent obtd. by blending a thermoplastic synthetic resin emulsion having a specified solubility to a styrene monomer, a silane compound and a cationic active lubricant.  
 CONSTITUTION: This glass fiber bundling agent is based on an emulsion of epoxy, polyester, polyurethane or styrene-acrylonitrile thermoplastic synthetic resin having <=50wt% solubility to a styrene monomer and contg. one or more kinds of silane compounds selected from aminosilane, epoxysilane and vinylsilane and a cationic active lubricant as secondary components. Glass fiber chopped **strands** treated with this agent are dipped in a styrene monomer and pearl **polymerized** in an aqueous medium. The resulting **glass fiber** thick **coat** is dry blended with a thermoplastic synthetic resin and injection molded to obtain a molded product having superior strength, heat resistance and impact value.  
 COPYRIGHT: (C)1981,JPO&Japio

L54 ANSWER 48 OF 52 WPIX (C) 2003 THOMSON DERWENT  
 AN 1979-10364B [06] WPIX  
 TI Coating **glass fibres** for use in sheet  
 moulding compounds - using compsn. contg. epoxy resin, vinyl acetate copolymer, crosslinker, hygroscopic salt, lubricant, acetic acid and water.  
 DC A18 A28 A32  
 IN BOCQUET, G; DROUX, M  
 PA (COMP) SAINT-GOBAIN IND SA  
 CYC 11  
 PI EP 683 A 19790207 (197906)\*  
     R: BE DE FR GB LU NL SE  
 NO 7802584 A 19790226 (197912)  
 JP 54027096 A 19790301 (197914)  
 FI 7802343 A 19790330 (197916)

FR 2398702 A 19790330 (197918)  
 IT 1109591 B 19851223 (198718)  
 PRAI FR 1977-23198 19770728; NL 1977-8662 19770804  
 REP DE 2659370; FR 2110469; FR 2186440  
 IC C03B000-00; C03C025-02; C08J005-24  
 AB EP 683 A UPAB: 19930901

Prod'n. of glass fibres with improved reinforcing capacity in sheet moulding compounds (SMC) comprises (1) high speed stretching of molten glass filaments, (2) coating the filaments with an aqs. coating compsn., (3) gathering the filaments during the stretching in the form of yarns which are (a) wound into cakes, dried and gathered into stratified strands in the form of balls, or (b) gathered directly as strands in the form of balls and dried.

The improvement comprises the use of an aqs. coating compsn. comprising: 0-6 wt. % of an aqs. soln. or emulsion of modified epoxy resin(s), 4-20 wt.% of an emulsion of a copolymer of vinyl acetate and acrylic monomers at least one of which contains an epoxy gp., 0.02-1 wt. % crosslinking agent e.g. an organo-silane, 0.2-1 wt. % hygroscopic salt, 0-2 wt. % lubricant, 0-1% crystallisable acetic acid and balance water.

The produced glass fibres are used for reinforcing plastics mouldings (partic. unsatd. polyesters) with improved mechanical props. due to uniform distribution of the fibres and with improved surface appearance since the fibres are not visible at the surface. The treated fibres also have improved winding props. and are antistatic.

FS CPI  
 FA AB  
 MC CPI: A04-F09; A05-A01C; A07-A04A; A07-B; A08-R04; A12-B05

L54 ANSWER 49 OF 52 HCAPLUS COPYRIGHT 2003 ACS  
 AN 1976:525317 HCAPLUS  
 DN 85:125317  
 TI Friction material for brake linings and the like  
 IN Marzocchi, Alfred; Jannarelli, Albert E.; Garrett, David W.  
 PA Owens-Corning Fiberglas Corp., USA  
 SO U.S., 5 pp.  
 CODEN: USXXAM  
 DT Patent  
 LA English  
 IC B32B005-16  
 NCL 428392000  
 CC 37-3 (Plastics Fabrication and Uses)  
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 3967037	A	19760629	US 1974-460628	19740412
PRAI	US 1974-460628		19740412		

AB Friction compns. for brake or clutch materials were prep'd. by bonding glass fibers with cured org. binders contg. a heat-conducting powd. metal and a binder modifying agent and, optionally, friction-modifying materials, an elastomer, or particulate fillers. Thus, glass fibers (1/8 in. chopped strand) 40, formaldehyde-phenol copolymer [9003-35-4] 15, an elastomer 3, barite 8, Cu chips 10, cuprous oxide 6, graphite 4, PbS 6, Sb2S3 4, and tetraethyl orthosilicate [78-10-4] 4% were blended, and 10% Me Et ketone was added. The wet mix was dried at .apprx.150.degree.F. The compn. was placed in a brake pad mold heated to 350.degree.F and pressed at .apprx.4000 psi. The resulting brake pads were post-cured at 350-400.degree.F for 15 hr. The d. of the pads was .apprx.2 g/cm<sup>3</sup>.  
 ST glass fiber friction material; phenolic resin binder glass fiber; metal

powder friction material; brake lining glass fiber  
 IT Glass fibers  
 RL: USES (Uses)  
 (friction materials contg., for brake linings)  
 IT Brakes (mechanical)  
 (linings for, phenolic resin-**impregnated glass**  
**fibers** contg. fillers as)  
 IT Binding materials  
 (phenolic resins, for glass fiber-contg. friction materials for brake  
 linings)  
 IT Cement  
 (portland, friction materials contg., for brake linings)  
 IT 9003-35-4 25104-55-6  
 RL: USES (Uses)  
 (binders, for glass fiber-contg. friction materials for brake linings)  
 IT 78-10-4 1305-62-0  
 RL: USES (Uses)  
 (friction materials contg., for brake linings)  
 IT 7440-50-8, uses and miscellaneous  
 RL: USES (Uses)  
 (powd., friction materials contg., for brake linings)  
 IT 7440-50-8, uses and miscellaneous  
 RL: USES (Uses)  
 (powd., friction materials contg., for brake linings)  
 RN 7440-50-8 HCAPLUS  
 CN Copper (7CI, 8CI, 9CI) (CA INDEX NAME)

Cu

L54 ANSWER 50 OF 52 HCAPLUS COPYRIGHT 2003 ACS  
 AN 1976:495251 HCAPLUS  
 DN 85:95251  
 TI Glass fiber-reinforced polyoxymethylene moldings  
 IN Murayama, Masamitsu; Kobayashi, Masakazu; Nakazawa, Tetsuzo  
 PA Mitsubishi Monsanto Chemical Co., Japan  
 SO Jpn. Kokai Tokkyo Koho, 6 pp.  
 CODEN: JKXXAF  
 DT Patent  
 LA Japanese  
 IC C08L059-00  
 CC 36-6 (Plastics Manufacture and Processing)  
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 51052455	A2	19760510	JP 1974-126359	19741101
	JP 59012694	B4	19840324		
PRAI	JP 1974-126359		19741101		
AB	Styrene (I) and <b>acrylonitrile</b> (II) are suspension polymers. In the presence of glass fibers, and 5-50 parts of the copolymer (III) [9003-54-7] composite contg. 20-90 wt.% glass fibers is blended with 50-95 parts polyacetal for reinforcement. Thus, a compn. of 3-mm chopped glass fiber strands 210, I 103, II 37, Bz202 1.4, H2O 1750, and acrylic acid-2-ethylhexyl acrylate copolymer 20 g was stirred 5 hr at 80.degree. to give 90 g of powd. III without glass fibers and 249 g of 2-3 mm-diam. times. 3-mm pellets of III contg. 82% glass fibers. A compn. of 26 parts of the glass fiber-contg. III and 74 parts				

Tenac 5010 (IV) [56940-47-7] was injection molded to give test pieces having tensile strength 1190 kg/cm<sup>2</sup>, flexural strength 1300 kg/cm<sup>2</sup>, flexural modulus 63,000 kg/cm<sup>2</sup>, and Izod impact strength with notch 10.3 kg-cm/cm, compared with 600, 860, 39,000, and 3.4, resp., for similar test pieces of IV contg. 20.8 wt.% of untreated glass fibers.

ST glass fiber reinforcement polyacetal; coating copolymer  
glass fiber; acrylonitrile styrene  
copolymer coating

IT Molding of plastics and rubbers  
(injection, of polyoxymethylenes, contg. acrylonitrile  
-styrene copolymer-coated glass  
fibers)

IT Glass fibers  
RL: USES (Uses)  
(polyoxymethylene reinforced by acrylonitrile-styrene  
copolymer-coated)

IT Polyoxymethylenes, uses and miscellaneous  
RL: USES (Uses)  
(reinforcement of, by acrylonitrile-styrene copolymer  
-coated glass fibers)

IT 9003-54-7  
RL: USES (Uses)  
(glass fibers coated with,  
polyoxymethylene reinforced by)

IT 42615-20-3 56940-47-7  
RL: USES (Uses)  
(reinforcement of, by acrylonitrile-styrene copolymer  
-coated glass fibers)

L54 ANSWER 51 OF 52 HCAPLUS COPYRIGHT 2003 ACS  
AN 1976:464063 HCAPLUS  
DN 85:64063  
TI Compositions of styrene resins  
IN Igarashi, Sumio  
PA Mitsubishi Monsanto Chemical Co., Japan  
SO Jpn. Kokai Tokkyo Koho, 5 pp.  
CODEN: JKXXAF

DT Patent  
LA Japanese  
IC C08L025-04  
CC 36-6 (Plastics Manufacture and Processing)  
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 51045156	A2	19760417	JP 1974-118382	19741015
	JP 57051423	B4	19821101		
PRAI	JP 1974-118382		19741015		
AB	Glass fibers were coated with polystyrene (I) [9003-53-6] or acrylonitrile-styrene copolymer (II) [9003-54-7] and used as fillers for I or ABS polymer [9003-56-9] to prep. compns. having good impact resistance and low heat of combustion. Thus, glass fiber chopped strands were immersed in 30 parts benzene contg. 10 parts I, dried to 20% resin pick-up, and mixed (30 parts glass fibers) with 100 parts I (including I coated on the glass fibers) and 15 parts CaCO <sub>3</sub> to prep. a compn.				
ST	glass fiber filler polystyrene; ABS polymer filler				
IT	Glass fibers RL: USES (Uses) (coatings on, polystyrene as, for fillers)				

IT Coating materials  
 (polystyrene, on glass fibers, as fillers for  
 polystyrene)  
 IT 9003-54-7  
 RL: TEM (Technical or engineered material use); USES (Uses)  
 (coatings, on glass fibers, as fillers  
 for ABS polymer)  
 IT 9003-56-9  
 RL: USES (Uses)  
 (fillers for, calcium carbonate and  
 acrylonitrile-styrene copolymer-coated  
 glass fibers as)  
 IT 9003-53-6  
 RL: PRP (Properties)  
 (fillers for, calcium carbonate and polystyrene-  
 coated glass fibers)

L54 ANSWER 52 OF 52 HCAPLUS COPYRIGHT 2003 ACS

AN 1969:29903 HCAPLUS

DN 70:29903

TI Glass fiber-reinforced rubber

IN Marzocchi, Alfred

PA Owens-Corning Fiberglas Corp.

SO U.S., 6 pp. Continuation-in-part of U.S. 3287204

CODEN: USXXAM

DT Patent

LA English

NCL 161176000

CC 38 (Elastomers, Including Natural Rubber)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 3413186	A	19681126	US 1966-573267	19660818
PRAI	US 1966-573267		19660818		

AB Glass fiber elastomeric products possessing a strong and permanent bonded relationship are provided with interfacial sepn. between the glass fiber system and the matrix of the continuous phase elastomeric material avoided to maximize the utilization of the desirable properties of the glass fiber. The area between the glass fiber bundles is completely filled with elastomeric material which ties in with the continuous phase elastomer to cushion the glass fibers thus improving flexural strength and wear and to tie in the glass fiber component with the continuous phase elastomeric system, with cure or vulcanization carried into the glass fiber system to form the elastomeric materials into a substantially continuous phase or monolithic system which involves the glass fibers. Typically, sep. filaments of glass fibers are coated before and as they are gathered into a single bundle or strand, with the compn. applied to the glass fibers contg. an anchoring agent, such as (.gamma.-aminopropyl)-triethoxysilane. A typical treating compn. contains partially dextrinized starch 8.0, hydrogenated vegetable oil 1.8, laurylamine acetate 0.4, nonionic emulsifying agent 0.2, (.gamma.-aminopropyl)triethoxysilane 1.0%, and the remainder water. The glass fibers are dried at elevated temp. or air dried. The glass fiber bundles thus obtained are then impregnated with a rubber compn., typically neoprene rubber 100, powd. MgO 4, ZnO 5, carbon black 15, Thiate B 1, and toluene 700 parts. Excess compn. is removed from the impregnated glass fiber strand. The strand is dried at 250-450.degree., and an over coat of elastomeric material is applied from a fluid rubber cement

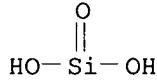
compn., typically SBR 712 80, prebroken smoked sheet natural rubber 20, ZnO 3, stearic acid 5, carbon black 50, pine tar 5, Aminox 1, diphenylguanidine 0.2, N-cyclohexyl-2-benzothiazolesulfenamide 1, and S 1.7 parts as a 20% solid soln. in toluene. Then, typically, a belt forming mandrel is wrapped with a layer of neoprene rubber, another layer of lesser loaded neoprene rubber is wrapped to provide an adhesion coat, then the cords of **strands** of rubber coated **glass fibers** are wrapped around the adhesion coat with a tacky rubber cement to hold down the cords and minimize shifting of the cords from a predetd. wrapped position, and over the layer of rubber coated **glass fiber** **strands**, yarns, or cords, another cushion **coat** of neoprene is wrapped to form the completed assembly. The multiple layers are then sliced circumferentially in parallel strips with glass fibers to form laterally sepd. strips, strips are removed by collapsing the mold, and the assembly is vulcanized at 350.degree. F. Alternatively, **glass fiber** bundles are **impregnated** with, in place of neoprene rubber, **compns.** contg. natural rubber latex-resorcinol-HCHO resin or resorcinol-HCHO resin, and the oil extended SBR resin is replaced with a mixt. of carboxylated butadiene-styrene resin and natural rubber.

- ST glass fiber reinforced rubber; fiber glass reinforced rubber; reinforced rubber glass fiber; rubber reinforced fiber glass; elastomers reinforced
- IT Rubber, uses and miscellaneous
  - (glass fiber-reinforced, adhesives for)
- IT Rubber, neoprene, uses and miscellaneous
  - (glass fiber-reinforced, rubber adhesives for)
- IT Fiber, glass, uses and miscellaneous
  - RL: USES (Uses)
    - (neoprene rubber reinforced with, rubber adhesives for)
- IT Adhesives, uses and miscellaneous
  - (rubber-based, for glass fiber-reinforced rubber)
- IT 24969-11-7
  - RL: USES (Uses)
    - (glass fiber reinforced with rubber and)

RN 10043-11-5 HCAPLUS  
 CN Boron nitride (BN) (8CI, 9CI) (CA INDEX NAME)

B≡N

IT 14807-96-6, Vantalc F 2003, uses  
 RL: TEM (Technical or engineered material use); USES (Uses)  
 (impregnated glass fiber strands  
 having resin compatible coating compns. and products  
 including the same)  
 RN 14807-96-6 HCAPLUS  
 CN Talc ( $Mg_3H_2(SiO_3)_4$ ) (9CI) (CA INDEX NAME)



3/4 Mg

L54 ANSWER 12 OF 52 HCAPLUS COPYRIGHT 2003 ACS DUPLICATE 6  
 AN 2001:617946 HCAPLUS  
 DN 135:169796  
 TI Glass fiber woven fabrics from glass  
 fibers coated with size composition containing starch,  
 lubricant, discrete particles and film-forming polymers  
 IN Lawton, Ernest L.; Lammon-Hilinski, Kami  
 PA PPG Industries Ohio, Inc., USA  
 SO PCT Int. Appl., 63 pp.  
 CODEN: PIXXD2  
 DT Patent  
 LA English  
 IC ICM C03C025-10  
 ICS C03C025-24; C03C025-32; C03C025-26; H05K001-03  
 CC 57-1 (Ceramics)  
 Section cross-reference(s): 38, 76  
 FAN.CNT 1  

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2001060756	A1	20010823	WO 2001-US5190	20010216
	W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM			
	RW:	GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG			

PRAI US 2000-183605P P 20000218  
 US 2001-779732 A 20010209 *Mixed 17C1 fiber/fabric w/starch particle*  
 AB Coated fiber strands consist of at least one fiber having a residue of an aq. forming size compn. applied to a portion of the surface of the fibers. The aq. forming size compn. comprises: one or more starch,

at least one film-forming material (such as N-Vinyl amide polymer), at least one lubricant and discrete particles that provide interstitial space between fibers to allow wet out of the fiber strand. For prodn. of **glass fiber fabrics, glass fibers** are coated with size compn. contg. an oleophobic starch, a film-forming N-vinyl amide polymer, an ester-based lubricant and dimensionally stable particles selected from **polymeric** org. materials (such as styrene acrylic copolymer), non-**polymeric** org. materials, **polymeric** inorg. materials, non-**polymeric** inorg. materials (such as boron nitride) and/or composite materials. The glass fiber fabric can be used as electronic support or in electronic circuit board.

ST size compn **glass fiber coated** woven fabric;  
starch lubricant film forming polymer particle size compn

IT Soybean oil  
RL: PEP (Physical, engineering or chemical process); PROC (Process)  
(CT 7000; **glass fiber** woven fabrics from  
**glass fibers coated** with size compn. contg.  
starch, lubricant, discrete particles and film-forming polymers)

IT Hardness (mechanical)  
(Mohs'; **glass fiber** woven fabrics from  
**glass fibers coated** with size compn. contg.  
starch, lubricant, discrete particles and film-forming polymers)

IT Electric circuits  
(board; **glass fiber** woven fabrics from  
**glass fibers coated** with size compn. contg.  
starch, lubricant, discrete particles and film-forming polymers)

IT Waxes  
RL: PEP (Physical, engineering or chemical process); PROC (Process)  
(cryst., lubricant; **glass fiber** woven fabrics from  
**glass fibers coated** with size compn. contg.  
starch, lubricant, discrete particles and film-forming polymers)

IT Transition metal chalcogenides  
RL: PEP (Physical, engineering or chemical process); PRP (Properties);  
PROC (Process)  
(dichalcogenides, particles; **glass fiber** woven  
fabrics from **glass fibers coated** with  
size compn. contg. starch, lubricant, discrete particles and  
film-forming polymers)

IT Vinyl compounds, processes  
RL: PEP (Physical, engineering or chemical process); PRP (Properties);  
PROC (Process)  
(ester group-contg., polymers, particles; **glass fiber**  
woven fabrics from **glass fibers coated**  
with size compn. contg. starch, lubricant, discrete particles and  
film-forming polymers)

IT Drag  
Emulsifying agents  
Friction  
Lubricants  
Nonwoven fabrics  
Particle size  
Sizes (agents)  
(**glass fiber** woven fabrics from **glass**  
**fibers coated** with size compn. contg. starch,  
lubricant, discrete particles and film-forming polymers)

IT **Glass fiber** fabrics  
**Glass fibers**, preparation  
RL: IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); PREP (Preparation); PROC (Process)

(glass fiber woven fabrics from glass fibers coated with size compn. contg. starch, lubricant, discrete particles and film-forming polymers)

IT Polyoxalkylenes, processes  
RL: PEP (Physical, engineering or chemical process); PROC (Process)  
(glass fiber woven fabrics from glass fibers coated with size compn. contg. starch, lubricant, discrete particles and film-forming polymers)

IT Soybean oil  
RL: PEP (Physical, engineering or chemical process); PROC (Process)  
(hydrogenated, Eclipse 102; glass fiber woven fabrics from glass fibers coated with size compn. contg. starch, lubricant, discrete particles and film-forming polymers)

IT Textiles  
(knitted; glass fiber woven fabrics from glass fibers coated with size compn. contg. starch, lubricant, discrete particles and film-forming polymers)

IT Fats and Glyceridic oils, processes  
RL: PEP (Physical, engineering or chemical process); PROC (Process)  
(lubricants; glass fiber woven fabrics from glass fibers coated with size compn. contg. starch, lubricant, discrete particles and film-forming polymers)

IT Acrylic polymers, processes  
Aminoplasts  
Borides  
Carbides  
Carbonates, processes  
Epoxy resins, processes  
Hydroxides (inorganic)  
Metals, processes  
Mica-group minerals, processes  
Nitrides  
Oxides (inorganic), processes  
Phenolic resins, processes  
Polyamides, processes  
Polyesters, processes  
Polyolefins  
Polyurethanes, processes  
Silicates, processes  
Sulfates, processes  
Sulfides, processes  
RL: PEP (Physical, engineering or chemical process); PRP (Properties);  
PROC (Process)  
(particles; glass fiber woven fabrics from glass fibers coated with size compn. contg. starch, lubricant, discrete particles and film-forming polymers)

IT Vinyl compounds, processes  
RL: PEP (Physical, engineering or chemical process); PRP (Properties);  
PROC (Process)  
(polymers, particles; glass fiber woven fabrics from glass fibers coated with size compn. contg. starch, lubricant, discrete particles and film-forming polymers)

IT Waxes  
RL: PEP (Physical, engineering or chemical process); PROC (Process)  
(spermaceti, lubricants; glass fiber woven fabrics from glass fibers coated with size compn. contg. starch, lubricant, discrete particles and film-forming polymers)

IT Plastics, processes

RL: PEP (Physical, engineering or chemical process); PROC (Process)  
(thermoplastics, film-forming; **glass fiber** woven  
fabrics from **glass fibers coated with**  
size compn. contg. starch, lubricant, discrete particles and  
film-forming polymers)

IT Plastics, processes  
RL: PEP (Physical, engineering or chemical process); PROC (Process)  
(thermosetting, film-forming; **glass fiber** woven  
fabrics from **glass fibers coated with**  
size compn. contg. starch, lubricant, discrete particles and  
film-forming polymers)

IT 106-11-6, Diethylene glycol monostearate  
RL: PEP (Physical, engineering or chemical process); PROC (Process)  
(DGS; **glass fiber** woven fabrics from **glass**  
**fibers coated with** size compn. contg. starch,  
lubricant, discrete particles and film-forming polymers)

IT 9036-19-5  
RL: PEP (Physical, engineering or chemical process); PROC (Process)  
(Igepal CA 630, Macol OP 10SP; **glass fiber** woven  
fabrics from **glass fibers coated with**  
size compn. contg. starch, lubricant, discrete particles and  
film-forming polymers)

IT 9005-65-6  
RL: PEP (Physical, engineering or chemical process); PROC (Process)  
(Tween 81, T-MAZ 81; **glass fiber** woven fabrics from  
**glass fibers coated with** size compn. contg.  
starch, lubricant, discrete particles and film-forming polymers)

IT 64-19-7, Acetic acid, processes 9003-39-8, PVP-K 30 9011-14-7,  
RhoplexB 85 25322-68-3, Carbowax 300 58799-02-3, CATION X  
202537-92-6, ROPAQUE HP-1055 226558-99-2, MAZU DF 136 252238-49-6,  
ROPAQUE HP 543 285980-72-5, ROPAQUE OP-96 337509-27-0, CL-2141  
354149-60-3, Epicure 3180E75 354149-63-6, Y 5659  
RL: PEP (Physical, engineering or chemical process); PROC (Process)  
(**glass fiber** woven fabrics from **glass**  
**fibers coated with** size compn. contg. starch,  
lubricant, discrete particles and film-forming polymers)

IT 337509-22-5, ALUBRASPIN 261  
RL: PEP (Physical, engineering or chemical process); PROC (Process)  
(lubricant; **glass fiber** woven fabrics from  
**glass fibers coated with** size compn. contg.  
starch, lubricant, discrete particles and film-forming polymers)

IT 126-57-8, Trimethylolpropane tripelargonate 540-10-3, Cetyl palmitate  
2598-99-4, Octadecyl palmitate 2599-01-1, Cetyl myristate 2778-96-3,  
Octadecyl stearate 3234-81-9, Octadecyl myristate 3234-84-2, Octadecyl  
laurate 20834-06-4, Dodecanoic acid, hexadecyl ester  
RL: PEP (Physical, engineering or chemical process); PROC (Process)  
(lubricants; **glass fiber** woven fabrics from  
**glass fibers coated with** size compn. contg.  
starch, lubricant, discrete particles and film-forming polymers)

IT 9005-25-8, Starch, processes  
RL: PEP (Physical, engineering or chemical process); PROC (Process)  
(oleophobic; **glass fiber** woven fabrics from  
**glass fibers coated with** size compn. contg.  
starch, lubricant, discrete particles and film-forming polymers)

IT 14807-96-6, talc, processes  
RL: PEP (Physical, engineering or chemical process); PROC (Process)  
(particles; **glass fiber** woven fabrics from  
**glass fibers coated with** size compn. contg.  
starch, lubricant, discrete particles and film-forming polymers)

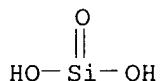
IT 1317-33-5, Molybdenum disulfide, processes

1318-74-7, Kaolinite, processes 7782-42-5,  
**Graphite**, processes 7790-80-9, Cadmium iodide 10043-11-5  
 , Boron nitride, processes 12039-55-3, Tantalum  
 diselenide 12058-18-3, Molybdenum diselenide 12067-46-8, Tungsten  
 diselenide 12138-09-9, Tungsten disulfide 12143-72-5, Tantalum  
 disulfide 13397-24-5, **Gypsum**, processes 13397-26-7,  
 Calcite, processes 21548-73-2, **Silver sulfide** 25085-34-1,  
**Acrylic acid-styrene copolymer**  
 RL: PEP (Physical, engineering or chemical process); PRP (Properties);  
 PROC (Process)  
 (particles; **glass fiber** woven fabrics from  
**glass fibers** coated with size compn. contg.  
 starch, lubricant, discrete particles and film-forming polymers  
 )

RE.CNT 1 THERE ARE 1 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

(1) Ppg Ind Ohio Inc; WO 9944957 A 1999 HCPLUS  
 IT 14807-96-6, **talc**, processes  
 RL: PEP (Physical, engineering or chemical process); PROC (Process)  
 (particles; **glass fiber** woven fabrics from  
**glass fibers** coated with size compn. contg.  
 starch, lubricant, discrete particles and film-forming polymers)  
 RN 14807-96-6 HCPLUS  
 CN Talc ( $Mg_3H_2(SiO_3)_4$ ) (9CI) (CA INDEX NAME)



3/4 Mg

IT 1317-33-5, Molybdenum disulfide, processes  
 1318-74-7, Kaolinite, processes 10043-11-5,  
 Boron nitride, processes 13397-24-5,  
**Gypsum**, processes  
 RL: PEP (Physical, engineering or chemical process); PRP (Properties);  
 PROC (Process)  
 (particles; **glass fiber** woven fabrics from  
**glass fibers** coated with size compn. contg.  
 starch, lubricant, discrete particles and film-forming polymers  
 )  
 RN 1317-33-5 HCPLUS  
 CN Molybdenum sulfide ( $MoS_2$ ) (8CI, 9CI) (CA INDEX NAME)

S—Mo—S

RN 1318-74-7 HCPLUS  
 CN Kaolinite ( $Al_2(OH)_4(Si_2O_5)_4$ ) (9CI) (CA INDEX NAME)

Component	Ratio	Component
		Registry Number
O <sub>5</sub> Si <sub>2</sub>	1	20328-07-8
HO	4	14280-30-9